700 MHz
Planning Committee

Region 39, Tennessee

Region 39, 700 MHz Regional Planning Committee
John Johnson, Chairman
3041 Sidco Drive
Nashville, TN 37204

December 13, 2005

Federal Communications Commission
Wireless Telecommunications Bureau
Chief, Public Safety and Private Wireless Division
445 12th Street, SW
Washington, DC 20554

Subject: WTB Docket No. 02-378, Region 39 - 700 MHz Regional Plan

Dear Sirs:

Attached is the Region 39 700 MHz Regional Plan for your review. This document is the result of over four years of work by the Region 39 Regional Planning Committee. We feel it best represents the needs of the public safety community in the State of Tennessee. I commend the Regional Planning Committee members and my wife for the hard work and long hours, long drives and many meetings invested to address issues that will benefit public safety communications in Region 39.

I also want to thank the National Law Enforcement and Correctional Technology Center Support Office for their continued support to the Region. The NLECTC support office was
always available for questions regarding regional planning and the CAPRAD database training the Region 39 members received will inevitably improve 700 MHz public safety spectrum
implementation within Tennessee

Since most of the 700 MHz band is clear of incumbent broadcast stations, we feel fortunate this plan will allow for the rapid, effective and successful implementation of 700 MHz spectrum in Tennessee. This will allow public safety entities to acquire needed spectrum for technology to complete their ever-changing mission.

It is our hope that this Plan will meet your approval and allow public safety agencies in Tennessee access to this much needed spectrum. If you have any questions, please contact me at (615) 741 – 3826.

Respectfully,

John Johnson

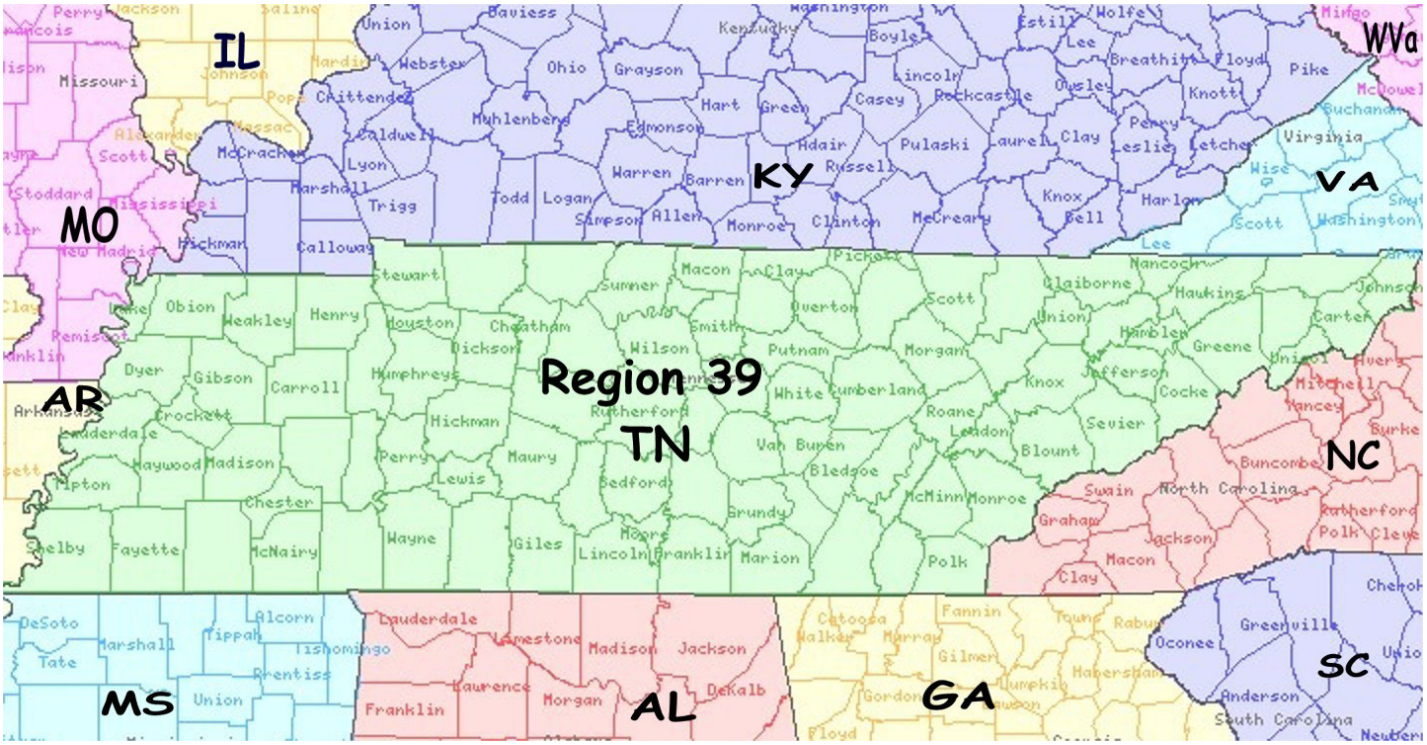
John Johnson
Chairman Region 39 RPC

PUBLIC SAFETY 700 MHz RADIO

COMMUNICATIONS PLAN

FOR REGION 39

THE STATE OF TENNESSEE



764-776/794-806 MHz Regional Plan for Region 39 (Tennessee)

Region 39 RPC Approved June 2, 2005

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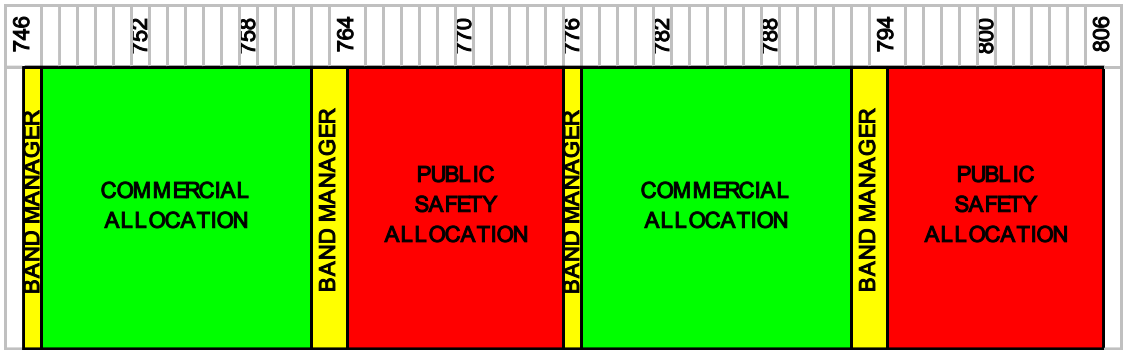
This document is the Regional Plan for Region 39 (Tennessee) describing how the 746 -776 MHz / 796 -806 MHz General Use frequencies will be allocated and implemented in the Region.

1.0 General Information

INTRODUCTION

The Regional Committee is established under section 90.527 of the FCC's rules and regulations.
Region 39 is an independent Committee apart form the Federal Communications Commission with authority to evaluate application for public safety uses of the spectrum allocated under FCC Docket 96-86. Twenty-four (24) MHz of the spectrum is allocated to Public Safety. The Public Safety spectrum consists of TV broadcast channel 63 & 64 paired with channels 68 & 69. This Plan deals with the 12.5 MHz of General Use spectrum for Public Safety.



The above table is how the 700 MHz spectrum (TV channels 60 – 69) was allocated.

1.1 Current Regional Chair

The Regional Chairperson of Region 39 is John W. Johnson. His information is below:

John W. Johnson
TN Emergency Management Agency
3041 Sidco Drive
Nashville, TN 37204
(615) 741 – 3826 (V)
(615) 741 – 6027 (F)
email: jjohnson@tnema.org

1.2 Other Current RPC Officers and full RPC Membership

The Vice Chairman of Region 39 is Alan Bull. His contact information is below:
Alan Bull
Knox County 911
Technical Services Manager
605Bernard Avenue
Knoxville, TN 37921
(865) 215 – 1101 (V)
(865) 215 – 1134 (F)
Email: abull@knox911.org

The Secretary for Region 39 is Charles Riggs. His contact information is below:
Charles Riggs
Rhea County 911 Director
PO Box 85
Evensville, TN 37332
(423) 775 – 6078

(423) 775 – 5042
Email: e911@volstate.net

Membership in the Region 39 Regional Planning Committee is open to any interested party as defined by FCC Part 90.20a. Committee Officer requirements, voting procedures and membership attendance requirements are listed in the Region 39 Planning Committee by-laws. Appendix A contains the Region 39 By-laws. Appendix B is a list of Region 39's members, their agency/affiliation and voting status. Voting and operating procedures are described in Section 2.2 of this Plan.

1.3 Region 39 Description

Region 39 encompasses the entire state of Tennessee, consisting of 95 counties. An alphabetized list of counties can be found listed in Appendix C.

Tennessee has been called the "Three States of Tennessee" because of its three grand divisions and the unique geography of each. Geographically, Tennessee is divided into six major natural regions. These areas, from east to west, are:

1) The Appalachian Mountain region along the North Carolina boarder with Mountain peaks ranging from 3000 to 6000 feet,

2) The Great Valley, also called the Grand Canyon of the East, with several long, narrow, even crested ridges running southwest to northeast and elevations of 1200 to 2500 feet,

3) The Cumberland Plateau again running from the southwest to the northeast it varies in width from 50 to 70 miles. It covers a total of about 4,260 square miles on a surface that is flat to rolling tableland that rises 800 to 1000 feet above the land on either side.

4) The Highland Rim with about 12,650 square miles outlines most of what is known as "Middle Tennessee." In the center of the Highland Rim is the Central Basin. Although the Highland Rim has a peak of over 2000 feet it has an average altitude of slightly less than 1000 feet. The terrain is "rough plateau" with the roughest parts along the edges of the Central Basin.

5) Central Basin is an oval depression that has a gently rolling surface with many small rounded hills that rise 200 to 300 feet above the general level. Terrain varies from about 500 to 1100 feet above sea level.

6) The Gulf Coastal Plain of West Tennessee covers all of what is known as West Tennessee with the area from Kentucky Lake and the Tennessee River to the Mississippi River. Generally it is a broad plain whose surface slopes to the west until it ends abruptly at the bluffs over looking the flood plain of the Mississippi River. Along the eastern edge streams have cut valleys that form a rough topography.

There are ninety-five counties in the state with a total landmass of 41,219 square miles according to the 1996 Land Area Statistics, US Bureau of the Census. The largest county is Shelby, with a total of 755 square miles. Water features of significance, are the Mississippi, Tennessee and Cumberland Rivers, Reelfoot Lake (natural), Watauga, Norris, Watts Bar, Chickamauga, Dale Hollow, Center Hill, Percy Priest, Old Hickory, Tims Ford, Pickwick, Kentucky and Barkley Lakes (manmade). Tennessee has 477 square miles of water within its' boundaries.

As shown above, the population of over five million people is distributed across nearly forty two thousand square miles of widely varying terrain. This presents some unique problems in area coverage for radio systems since the entire land area of any given jurisdiction must be covered. The population per square miles in urban areas tends to be dense and in rural areas tends to be sparse. The population distribution and the very diverse geographical features of the state must be carefully considered in communications system planning. All these items were taken under consideration in the allocation Plan.

Tennessee's population according to the 2002 Census of Population and Housing, U. S. Bureau of Census, as found in the *Tennessee Blue Book*, is 5,797,289. Tennessee has four metropolitan areas plus the Tri-Cities area spread across the State. These five areas make up 64% of the population. Three of these metropolitan areas border other states. Memphis is the largest metropolitan area and borders Mississippi and Arkansas. Nashville, the capitol city, is the second largest and has a metropolitan area that extends to the Kentucky state line. This is the fastest growing area in Tennessee and one of the fastest in the nation, with the adjacent cities of Murfreesboro, Franklin, Lebanon and near by Clarksville. Clarksville is home to Ft. Campbell and the 101st Airborne (though it is actually in Kentucky) but greatly impacts Tennessee. Knoxville is the third largest and includes the city of Oak Ridge. The fourth area is Chattanooga, which borders Georgia and Alabama. The fifth largest metropolitan area is the Tri-Cities area made up of Bristol, Johnson City and Kingsport. Bristol is split into two towns by the Virginia / Tennessee border. Also a factor in the Tri-Cities metropolitan area is the proximity of Virginia, North Carolina and Kentucky.

Region 39 (State of Tennessee) has eight (8) adjacent bordering Regions and three (3) non-bordering Regions within 70 miles of the State border. They are as follows:

Region 1	State of Alabama	Border

Region 4	State of Arkansas	Border
Region 10	State of Georgia	Border
Region 13	Southern Illinois	Non Border
Region 17	State of Kentucky	Border
Region 23	State of Mississippi	Border
Region 24	State of Missouri	Border
Region 31	State of North Carolina	Border
Region 37	State of South Carolina	Non Border
Region 42	State of Virginia	Border
Region 44	State of West Virginia	Non Border

In previous NPSPAC 821 MHz frequency allotments, spectrum amounts disproportionate to population densities were allocated due to differing methodologies used in adjacent NPSPAC Regions and the timing of adjacent Regions Plan approval. This resulted in a minimum number of channels available for Region 39, particularly in the Memphis area that borders Mississippi and Arkansas. In the 700 MHz band, county allotments for both narrowband and wideband channels have been developed based on population densities relative to adjacent Regions. Due to the Region's diverse population densities and the scarce spectrum resources in Tennessee's populated areas, it is anticipated the majority of requests for voice/data spectrum will be from the five metropolitan and surrounding areas, which all currently operate existing 800 MHz trunked radio networks.

It is anticipated that other areas within Region 39, including areas in the Northwestern parts of Tennessee that borders Missouri, Arkansas and Kentucky, the Northeast area that borders Virginia & North Carolina and the Southeastern area that borders Georgia and Alabama may request 700 MHz channels from established county pool allotments to either expand existing 800 MHz systems or develop new 700 MHz systems

2.0 Notification and Operation

2.1 Notification Process

The 800 MHz NPSPAC Region 39 Chairperson, John W. Johnson, acted as the 700 MHz Convener. A 700 MHz Regional Planning Committee meeting date was set for May 8, 2001. Notification to interested parties began ninety (90) days prior to the first meeting

as well as follow-up reminder announcements were issued. Announcements indicating the date, time and location of the first meeting were sent by mail to the FCC Wireless Telecommunications Bureau and, posted in the following industry periodicals: *Mobile Radio Technology* Magazine, and the Association of Public Safety Communications Officials, Inc. magazine, the *Nashville Record* newspaper and *Tennessee Town & City*, a newspaper published by the Tennessee Municipal League. Every city and county Mayor in Tennessee as well as all known Public Safety and Public Service Associations were mailed or emailed an announcement of the meeting. The Associations notified were as follows:

TN Association of Public-Safety Communications Officials
Emergency Management Association of TN
Native American Indian Association of TN
TN Ambulance Service Association
TN Association of Chiefs of Police
TN Association of County Executives
TN Association of Housing & Redevelopment Authorities
TN Association of Mental Health Organizations
TN Association of Rescue Squads
TN Association of Utility Districts
TN Board of Regents
TN County Highway Officials Association
TN County Service Association
TN District Attorneys Conference
TN Emergency Communications Board
TN Emergency Numbers Association
TN Fire Chief's Association
TN Hospitals Association
TN Municipal Electric Power Association
TN Municipal League
TN Organization of School Superintendents
TN Public Transportation Association
TN Recreation & Parks Association
TN School Boards Association
TN Sheriff's Association
TN Water & Wastewater Association
TN Wireless Communications Council
University of TN System
Rural Transportation Directors Association
State of Tennessee, Emergency Services Coordinators

American Red Cross, Nashville

Federal agencies contract are as follows:

TN Valley Authority

Dept. of Energy, Oak Ridge
Federal Emergency Management Agency, Region 4
TN National Guard
Corps of Engineers
Federal Bureau of Investigation field office in Nashville

The meeting information was also disseminated on the Tennessee Information Enforcement System (TIES) network and received by all law enforcement agencies in Tennessee.

This awareness allowed for the dissemination of meeting information to hundreds of law enforcement agencies, public safety and public service agencies and critical infrastructure operators throughout Tennessee. There is no Native American tribal reservation located within Region 39, however the Native American Indian Association of Tennessee was notified. Copies of the announcements sent to the FCC, any Public Notices released relating to Region 39's meeting, the ads placed in the industry periodicals, and emails sent to interested agencies are included in Appendix D.

The 700 MHz RPC first meeting convened on May 8, 2001, by John Johnson. Bill Pogue of the Tennessee Department of Safety was elected the Chairperson of the Region 39 700 MHz RPC. John W. Johnson of the Tennessee Emergency Management Agency was elected to the position of Vice Chairperson and Alan Bull of Knoxville / Knox County 911 was elected Secretary / Treasurer of the Region 39 700 MHz RPC. The FCC did issue a Public notice for this meeting. At this and at all meetings, any one attending, voting or non-voting member may voice their comments on the Plan.

The Region 39 RPC consists of sixteen State agencies, forty-three local government entities representing twenty-five different counties, and six different disciplines, three federal agencies, two associations, one disaster relief organization, state homeland security representatives and eleven vendors. The actual number of associations represented was actually much higher since most chose to represent their department instead of their association.

2.2 Operations of the Regional Plan Committee

This committee will use *Simplified Parliamentary Procedures* to conduct meetings. This method allows for all members to have their voice heard. All decisions will be by clear consensus vote with each Public Safety Agency in attendance having one (1) vote. Additional voting member considerations are listed in the Region 39 Bylaws, Appendix A. The meetings are open to all interested persons and public input time is provided for anyone to express a viewpoint or to have input to the Regional Planning process.

Subcommittees have been formed as needed to work on specific issues. For the initial planning of Region 39, three subcommittees were formed.

Technical & Implementation, Interoperability, and Administrative Subcommittees: These subcommittees are intended to work on the details of specific issues and make

recommendations to the full committee for the development of the Region 39 Regional Plan. Any changes to the Regional Plan must be voted and approved by the full Regional Planning Committee. Participation in subcommittees is open to any member. The Chair of the Regional Planning Committee appoints each Subcommittee Chair.

The Region 39 subcommittees are listed below:

Administrative: Charlie Phipps, Chairman
Interoperability: John W. Johnson, Chairman
Technical & Implementation: Arnold Hooper, Chairman

A minimum of one (1) full committee meeting will be held per year. The Region 39 Chairperson has the authority to call an additional meeting at a time when he/she deems necessary or when he/she deems it in the best interest of the Region to convene. In an attempt to offer as many people as possible the opportunity to contribute to the Regional 700 MHz Planning Committee, a central location was chosen to host the meeting.

The Region 39 700 MHz list-server and web site, was created in November 2004. This was used to disseminate information to those interested as well as dates and time of sub-committee and full committee meetings. The web site is www.region39.org and the list server address is reg39rpc@region39.org.

Beginning two years after Federal Communications Commission's approval of this Regional Plan, the Chairperson shall call a meeting of the Regional Planning Committee to elect a Chair, Vice Chair and Secretary to serve for a two-year term. There is no limit to the number of terms that may be served by officers of the 700 MHz Regional Planning Committee.

If the Chair is unable to serve a complete term, the Vice Chair will serve as Chair until the next 700 MHz Regional meeting. If both the Chair and Vice Chair are unable to serve their full terms, one or the other should make an effort to call a special meeting of the Committee to elect replacements. If for some reason, neither the Chair nor the Vice Chair can call the special meeting; the State or any County within the Region may call for a special meeting, giving at least 5 days notice, to elect replacements.

A chronological list of meetings, minutes, meeting announcements and table outlining Region 39's progress in 700 MHz developments is located in Appendix D of this document.

2.3 Major Elements of the Plan

The major elements of this Plan follow the National Coordination Committee (NCC) guidelines. Region 39 would like to express its "Thanks" to the NCC for their work on these guidelines. Without the guidelines, the Plan development would have been much

more difficult. Region 39 would also like to thank the National Law Enforcement and Correctional Technology Center (NLECTC) for its development and support of the Computer Assisted Pre-coordination Resource And Database System (CAPRAD) and the staff that supports this system. The funding, training and support from NLECTC, Rocky Mountain Region and the CAPRAD personnel as well as the Regional Planning Colloquiums were invaluable to the development of this Plan.

The major elements of this Plan are (1) the declaration that this is the Region 39 Plan, (2) that Region 39 encompasses the entire State of Tennessee, (3) the administration an operation of the committee, (4) 700 MHz interoperability, (5) General Use spectrum management and (6) allocation requests, (7) dispute resolution, (8) adjacent Region coordination and (9) the appendices with the channel allocation being Appendix G. The channel allocation contains the both the general usage voice and wideband data channels.

3. Regional Plan Administration

3.1 Procedure for Requesting Spectrum Allotments

A. General Information

Upon FCC approval of this Plan, Region 39 will announce to the Region that 700 MHz public safety channels are available in the Region and that channels have been assigned in pool allotments to counties within the Region for usage by Public Safety entities. The general usage spectrum may be used by all Local government entities and State agencies only if the State Channels have been depleted or not available in that county. The Wide Band Data Channels are available to both Local and State government on a first come first serve basis.

All available methods will be used to notify public safety entities of channel availability in the Region (see Section 2.1). All spectrum requests will be considered on a first come, first served basis. Region 39 supports the National Coordination Committee Pre-Assignment Rules and Recommendations listed in Appendix F, and will use these guidelines as a template to determine if an application submitted to the Regional Planning Committee meets Regional Planning standards. It is recommended that applicants familiarize themselves with these recommendations prior to submitting applications for Region 39 700 MHz public safety system implementation. Region 39 may develop a supplemental form for applicants to submit, along with their FCC form, to help guide them through the application process.

In general and unless otherwise noted, the Region 39 Regional Planning Committee will adhere to the published National Coordination Committee Implementation Guidelines for 700 MHz Public Safety Regional Planning Committees.

B. Spectrum Re-Usage

Region 39 utilized the CAPRAD pre-coordination database system to maximize channel re-usage in the 700 MHz band. Since the spectrum is reused, it is hoped that each system will use the minimum power necessary to meet their needs. If power and ERP seems excessive to the committee, a reduction in power or antenna gain may be requested to minimize interference and increase spectrum efficiency to other co-channel and adjacent channel users.

C. Application Submission

To request channels from Region 39, a full application package must be submitted to the NLECTC -Sponsored CAPRAD database at http://caprad.nlectc.du.edu/login/home. The application must include: the current FCC Form (currently the 601), a short description of the proposed system, a justification for the additional spectrum, an coverage prediction map using the current version of TIA/EIA TSB 88 guidelines, maps showing all interference predicted in the proposed system, documents indicating agency-funding commitments sufficient to fund the development of the proposed system(s), a list of 'give-back' channels, if applicable and the Region 39 supplemental form. Exceptions in accepting applications from qualified applicants will be made by the Region if applicants have demonstrated a need for 700 MHz channels and cannot access the CAPRAD database.

D. Application Distribution / Coordination

The Chair will distribute the application request to all other necessary agencies with allotments in the Plan for review and approval. Absent a protest, the Regional Planning Committee will approve the application and (if applicable), submit it, through the CAPRAD database, to the applicant's preferred FCC-certified frequency coordinator for processing. This process meets the requirements of FCC Rule 90.176 (c).

The CAPRAD database will reflect the approved application and place the channels for the proposed system in "pre-license" status.

E. Give Up or Give Back Spectrum

When applying for new 700 MHz channels, the Regional Planning Committee encourages applicants to relinquish some amount of currently licensed spectrum ("give back channels") and make that spectrum again available for use within the Region. Agencies with existing licensed 800 MHz systems that are requesting 700 MHz channels for system expansion will not fall under this requirement. An agency may retain channels that are used for paging, telemetry, microwave or other functions that the 700 MHz spectrum does not meet the agency's need.

When an applicant submits a request for 700 MHz spectrum, a “Give Back Plan” should accompany the application. This Plan should show what frequencies would be vacated, a time line for the transition and what channels are being retained. If an existing channel is being retained for interoperability purposes, please identify that channel in the “Give Back Plan”.

Frequency “give back” requirements shall hold true for regional systems where system constituents maintain discrete licenses for their own internal operations. In this case, constituent political subdivisions or agencies are required to participate in the “give back” plan. Should a political subdivision or agency act as host of a regional system, both the host agency and the constituent agencies should participate in the “give back” Plan.

Frequencies used for non-voice critical infrastructure support functions [Supervisory Control and Data Acquisition (SCADA) systems] as well as frequencies that are used for interoperability with other regional, state or national agencies that rely on one certain frequency band for emergency operations, such as, but not limited to "TN Law Enforcement Mutual Aid" (154.755/156.015 MHz / 460/465.400 MHz), "TN Inner City" (155.3700) or the “National Law Enforcement Emergency Channel” (155.4750 MHz) or “TN Fire Mutual Aid” (154.295) or “TN EMS Mutual Aid” (155.205) as well as other mutual aid or interoperable channels may be exempted by the Committee as candidates for “give back”. Frequencies used by an applicant for such purposes, as well as the specific use and a network/ system diagram, must be specified in supportive documentation supplied with the application to enable the Regional Planning Committee to consider any possible exemption.

In cases of hardship or failure to implement, the Regional Planning Committee will consider, on a case-by-case basis, extensions not to exceed five years from date of license issuance, of the “give back” timetable. The dispute arbitration process in Section 3.6 of this document shall apply should there be protest.

F. Allocation Disputes:

An agency may protest a proposed system within 30 calendar days of the original distribution. Protests will only be considered if the allocation does not conform to Plan criteria or objecting agency or the Chairperson can show harmful interference is likely based on the information submitted by the agency requesting the new allocation. If an agency with pre-licensed/Region approved co-channel or adjacent channel allocations objects to a proposed allocation due to concerns about potential interference, the objecting agency may request field tests be done to confirm or refute interference potential. The completion of these field tests and the results will be required for Regional application approval. Coverage area service/interference contours of the proposed system(s) should meet values designated in Section 6.1 of this document. Any costs associated with field tests or any other requirements to obtain Region 39 Plan approval are the responsibility of the agency submitting application to Region 39.

The parties involved must resolve the allocation dispute and notify the Region Chair within 30 calendar days. If the parties involved cannot resolve the allocation dispute within that timeframe, then a special full Committee meeting will be scheduled to consider and vote on the protest. *The burden of proof will be on the protesting party.* The protesting party may be liable for any costs associated with the protest if the complaint is unfounded. If approved, the application will be submitted through the CAPRAD database to the applicant's chosen FCC-certified frequency coordinator for processing.

G. Lower Power "Campus Eligible" Digital General Use Channels:

With the implementation of 700 MHz public safety spectrum throughout Region 39, there may be opportunities for increased channel reuse when developing radio systems for "campus" type operations. Examples of those who may capitalize on this opportunity include hospitals, stadiums, parks or places of public gathering, public universities, transit systems, correctional facilities and mental health facilities. While these channels have been designated in county pool allotments with proper designation, they do not enjoy the benefits of countywide channels in that they are not cleared for usage over a wide area. In many instances, facilities require a smaller or more specific geographical coverage area than assumed in the initial channel packing plan and may be able to be reused more efficiently. These "campus" type systems also, in many cases, require in-building or confined space/ tunnel radio coverage or communications along a linear pathway, such as a maintenance or right of way. These channels may also be used for "vehicular repeater" (MO3) operation. Public safety channels can be allotted to this type operation in a Region and can lead to effective system development, along with increased spectral efficiency, if power levels and Area of Protection (AOP) of the area are taken into account in system planning. These parameters must be established appropriate to the area of coverage. These channels are NOT eligible to be utilized throughout the county they are licensed in but to a specific geographic area, unless otherwise licensed. The Low Power channel will be licensed on an as need or first come, first serve basis. The following criteria must be adhered to when requesting channels from Region 39 for operations of this type:

The 40dBu service contour of the proposed system must not exceed an area more than 5 miles or 8 Km from the proposed service area. When this 5-mile distance extends to an adjacent Region, the applicant must obtain concurrence from the adjacent Region. Reduced external antenna heights, along with reduced ERP, directional antenna, distributed antenna systems, down tilt, radiating "leaky coax," are all tools that should be utilized in the development of these type systems. Region 39 will ensure the development of these types of systems will in no way interfere with co-channel or adjacent channel users within Region 39 or Region 39's adjacent Regions. The Chairperson, or a majority of the members of the Region, has the authority to request and require engineering studies from the applicant that indicate no harmful interference will be introduced to any co-channel or adjacent channel existing user prior to application approval. For 25 kHz co-channel assignments, the 50dBu service contour of the proposed stations will be allowed to extend beyond the defined service area for a distance no greater than 2 miles. An adjacent/alternate 25 kHz channel shall be allowed to have its

60 dB (50,50) contour touch, but not overlap the 40dB service (50,50) contour of an adjacent/alternate system being protected. Evaluations should be made in both directions to ensure compliance. The approval of systems utilizing county allotment channels labeled "Campus", are subject to approval of the Regional planning committee. They are the final authority on parameters associated with "campus" type operations.

When Region 39 receives an application for low power fixed use and the proposed service contour encroaches onto an adjacent Region prior to the channel allotted to the Region being implemented in a specific system, the application must be modified so the service contour does not encroach into the adjacent Region or the applicant must supply the Region 39 700 MHz Regional Planning Committee with written concurrence from the adjacent Region permitting the original design.

3.2 Procedure for Frequency Coordination

The Region 39 Planning Committee will adhere to the National Law Enforcement & Corrections Technology Center (NLECTC) 700 MHz General Use channel sort as shown on the CAPRAD database for narrowband General Use channels. Region 39 utilized the CAPRAD system to sort the wideband data channels. (See Appendix G). Region 39 will participate in the CAPRAD database and keep the Regional Plan and current frequency allotment/allocation information on the database. The Region 39 Regional Planning Committee has both the ability to accept recommendations from the committee and, if approved, the authority to change the original frequency allotment. In order to keep the most effective frequency allotments within Region 39, an annual review of the allotments will be made at one of the scheduled meetings by the full committee and recommended changes to the Plan will be voted on. The majority of members in attendance at a meeting of the full Regional Planning Committee must approve any changes to the Regional allotments. If at any time a system is allocated channels within Region 39 and the system cannot be developed within the agreed upon guidelines (slow growth), the channels will be returned to the county pool allotments they originated from and again be available to other agencies in the Region. If Plan modifications are approved, the Chairperson will, if necessary, obtain adjacent Region approval and file a Plan amendment indicating the approved changes with the Federal Communications Commission.

3.3 Allocation of Narrowband "General Use" Spectrum

The Region 39 Technical & Implementation Subcommittee recommends that allotments be made on the basis of one 25 KHz channel for every two (2) voice channel requests and one 12.5 KHz channel for each narrowband data channel request. This recommendation is approved by the full Committee and is part of this Plan. Allotments will be made in 25 KHz groups to allow for various digital technologies to be implemented. All agencies requesting spectrum during the initial filing window (see Section 3.1) will be allocated channels if Plan requirements are met. Agencies using Frequency Division Multiplexing (FDMA) will be expected to maintain 12.5 KHz equivalency when developing systems and will be required to utilize BOTH 12.5 KHz portions of the 25

KHz block. In most cases, this will require the geographic separation of each 12.5 KHz adjacent channel. In order to promote spectrum efficiency, Region 39 will encourage that systems allocated 25 KHz channel blocks will utilize the entire channel and not "orphan" any portions of a system designated channel. (See Section 6.3)

3.4 Low Power Analog Eligible Channels

The FCC in the 700 MHz band plan set aside channels 1 - 8 paired with 961 – 968 and 949 – 958 paired with 1909 – 1918 for low power use for on-scene incident response purposes using mobiles and portables subject to Commission-approved Regional Planning Committee Regional Plans. Transmitter power must not exceed 2 watts (ERP).

Channels 9 –12 paired with 969 – 972 and 959 – 960 paired with 1919 – 1920 are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP). These channels may operate using analog operation. To facilitate analog modulation, this Plan will allow aggregation of two 6.25 KHz channels for 12.5 kHz bandwidth.

On scene temporary base and mobile relay stations are allowed (to the extent FCC rules allow) antenna height limit of 6.1 meter (20 feet) AGL (Above Ground Level). Vehicular repeater operation (MO3) is also allowed. However, users are encouraged to operate in simplex mode with the least practical amount of power to reliably maintain communications whenever possible. This Plan does not limit use to analog only operations and channels are intended for use in a wide variety of applications that may require digital modulation types as well. The use of EIA/ TIA-102, Project 25 Common Air Interface is required when using a digital mode of operation.

In its dialog leading up to CFR §90.531 allocating the twenty-four low power 6.25 kHz frequency pairs (of which eighteen fall under RPC jurisdiction)[1], the Federal Communications Commission (FCC) suggested that there is a potential for multiple low power applications, and absent a compelling showing, a sharing approach be employed rather than making exclusive assignments for each specific application as low power operations can co-exist [in relatively close proximity] on the same frequencies with minimal potential for interference due to the 2 watt power restriction.

Whereas advantages exist in not making assignments, the reverse is also true. If, for example, firefighters operate on a specific frequency or set of frequencies in one area, there is some logic in replicating that template throughout the Region for firefighter equipment. If there are no assignments, such a replication is unlikely.
In seeking the middle ground with positive attributes showing up both for assignments and no assignments, we recommend the following regarding assignments associated with the eighteen (18) low power channels for which the Regional Planning Committee has responsibility:

[1] See paragraphs 35 through 39 in FCC's Third Memorandum Opinion and Order for WT Docket No. 96-86 adopted September 18, 2000.

Generic - Channel #'s 1-4 and 949-952 are set aside as generic base channels for use by public safety agencies operating within Region 39, and the complementary mobile channels # 961-964 and 1909-1912 are set aside as generic mobile channels also for use by public safety agencies likewise operating within Region 39.

Fire/ EMS/ Consequence Management - Channel #'s 5-8 are designated as Fire Protection/ Emergency Medical and Consequence Management base channels for licensing and exclusive use by the Fire/Emergency Medical disciplines, and the complementary mobile channel #'s 965-968 are set aside as Fire/Emergency Medical and Consequence Management mobile channels also for licensing and exclusive use by the Fire/Emergency Medical disciplines.

Law Enforcement/ Crisis Management - Channel #'s 953-956 are set aside as Law Enforcement/Crisis Management base channels for licensing and exclusive use by the Law Enforcement discipline, and the complementary mobile channel #'s 1913-1916 are set aside as Law Enforcement/Crisis Management mobile channels also for licensing and exclusive use by the Law Enforcement discipline.

Multidisciplinary Joint Public Safety Operations - Channel #'s 957-958 are set aside as Multidisciplinary Joint Public Safety Operations base channels for licensing and the complementary mobile channel #'s 1917-1918 are also set aside as Multidisciplinary Joint Public Safety Operations Channels for use by political subdivisions and public safety agencies operating under a unified command at a common incident for the express mission of safety of life, property or environment.

Simplex operations may occur on either the base or mobile channels. Users are cautioned to coordinate on scene use among all agencies involved, particularly when the use of repeater modes is possible at or in proximity to a common incident. Users should license multiple channels and be prepared to operate on alternate channels at any given operational area. Again, Region 39 Regional Planning Committee will require all 700 MHz users to have the capability to access ALL of the NCC approved interoperability channels in both duplex and simplex modes.

Below is a table of the low power channels.

Channel #	Frequency	Use	Channel #	Frequency
1	764.003125	**RPC Admin**	961	794.003125
2	764.009375	**RPC Admin**	962	794.009375
3	764.015625	**RPC Admin**	963	794.015625
4	764.021875	**RPC Admin**	964	794.021875
5	764.028125	**RPC Admin**	965	794.028125
6	764.034375	**RPC Admin**	966	794.034375
7	764.040625	**RPC Admin**	967	794.040625
8	764.046875	**RPC Admin**	968	794.046875
9	764.053125	**Itinerant**	969	794.053125

10	764.059375	**Itinerant**	970	794.059375
11	764.065625	**Itinerant**	971	794.065625
12	764.071875	**Itinerant**	972	794.071875
949	775.928125	**RPC Admin**	1909	805.928125
950	775.934375	**RPC Admin**	1910	805.934375
951	775.940625	**RPC Admin**	1911	805.940625
952	775.946875	**RPC Admin**	1912	805.946875
953	775.953125	**RPC Admin**	1913	805.953125
954	775.959375	**RPC Admin**	1914	805.959375
955	775.955625	**RPC Admin**	1915	805.955625
956	775.971875	**RPC Admin**	1916	805.971875
957	775.978125	**RPC Admin**	1917	805.978125
958	775.984375	**RPC Admin**	1918	805.984375
959	775.990625	**Itinerant**	1919	805.990726
960	775.996875	**Itinerant**	1920	805.996875

3.5 Wideband Data

TIA has developed a wideband data interoperability standard based on 50 KHz channel bandwidth. The RPC shall also consider applications for aggregation of data channels up to 150 kHz. Each county within Region 39 shall be allotted, at a minimum, three contiguous 50 KHz channel for a total of 150 KHz of bandwidth. Shelby, Davidson, Hamilton, Knox and the Tri-Cites area (which consists of Sullivan and Washington counties), will receive and addition allocation of two 150 KHz channel pairs. An additional 150 KHz of spectrum was allotted to counties not mentioned above that also have a State University within the county or two or more State agency Regional or District Head Quarters. Additional available wideband data channels will be considered on a first come first serve basis once a system is loaded. If one entity exhausts the spectrum resources within the county, thus precluding assignment to other interested agencies, that agency must demonstrate its willingness to cooperate with the precluded agencies within the county to provide access to its facilities for throughput. In such situations, each agency shall internally negotiate costs without mediation by the Regional Planning Committee. The final implementation budget, as well as the abridged loading figures shall be forwarded to Region 39 prior to adding the new users.

The ranking criteria for each allocated 50 KHz General Use Wideband data channel in Region 39 will be developed in accordance with NCC Implementation Subcommittee Guidelines. Applicants will be required to provide the Regional Planning Committee with their identified wideband needs so the Region can determine the number of wideband data channels needed beyond the initial spectrum allocation.

3.6 Dispute Resolution – Intra-Regional

In the event an agency disputes the implementation of this Plan or the Federal Communications Committee approval of this Plan or parts of this Plan, the agency must notify the Chair of the dispute in writing. This section does not apply to protests over new spectrum allocations (see Section 3.1). The Chair will attempt to resolve the dispute on an informal basis. If a party to the dispute employs the Chair, then the Vice Chair will attempt resolution. In such cases, the Chair shall be deemed to have a conflict of interest and will be precluded from voting on such matters. If after 30 days the dispute is not resolved, the Chair (or Vice Chair) will appoint a Dispute Resolution Committee consisting of two members from the State of Tennessee governmental agencies and at least five members from different counties in Region 39. That committee will select a Chair to head the committee and a secretary to document the proceedings.

The Regional Plan Chair (or Vice Chair) will represent the Region in presentations to the Dispute Resolution Committee. The Committee will hear input from the disputing agency, any effected agencies and the Region Chair. The Committee will then meet in executive session to prepare a recommendation to resolve the dispute. Should this recommendation not be acceptable to the disputing agency/agencies, the dispute and all written documentation from the dispute will be forwarded to the National Regional Planning Oversight Committee, a subcommittee of the National Public Safety Telecommunications Committee (NPSTC) for review. As a last resort, the dispute will be forwarded to the Federal Communications Commission for final resolution.

All eleven adjacent Regions have signed the Region 39 dispute resolution.

4.0 Priority Matrix

In the event that spectrum allocation requests conflict and cannot all be accommodated, the following matrix will be used to determine priority for allotment. This matrix will only be used if two requests are received in the same time frame for the same number of channels. Otherwise, the first come first served procedure of Section 3.1 will be used.

- Service (Maximum score 250 points)
  Priority is given to users fundamentally involved with the protection of Life and Property Police, fire, EMS, Rescue, EMA, combined systems, multi-jurisdictional systems, etc.

- Inter-system & Intra-system interoperability (Maximum score 100 points)
  How well the proposed system will be able to communicate with other levels of government and services during an emergency on "regular" channels, not the I/O channels.
  Interoperability must exist among many agencies to successfully accomplish the highest level of service delivery to the public during a major incident, accident, natural disaster or terrorist attack. Applicants requesting 700 MHz spectrum shall inform the Region of how and with whom they have been achieving interoperability in their present system. (See appendix F for list of possible interoperability agencies)

  The applicant shall stipulate how they will accomplish interoperability in their proposed system (gateway, switch, cross-band repeater, console cross patch, software defined radio, or other means) for each of the priorities listed below:

  1. Disaster and extreme emergency operation for mutual aid and interagency communications.
  2. Emergency or urgent operation involving imminent danger to life or property.
  3. Special event control, generally of a preplanned nature (including task force operations).
  4. Single agency secondary communications.
  5. Routine day-to-day non-emergency operations.

- Loading (Maximum score 100 points)
  Is the system part of a cooperative, multi-organization system? Is the application an expansion of an existing 800 MHz system? Have all 821 channels been assigned (where technically feasible)? A showing of maximum efficiency or a demonstration of the system's mobile usage pattern could be required in additional to loading information. Based on population, number of units (if number of units, are they take home, how many per officer), what are the talk groups?

- Spectrum Efficient Technology (Maximum score 200 points)
  How spectrally efficient is the system's technology? Trunked systems are considered efficient "as well as any technological systems feature, which is

designed to enhance the efficiency of the system and provide for the efficient use of the spectrum."

- Systems Implementation Factors (Maximum score 200 points)
  Applicants should submit some form of proof of financial commitment, accompanied by a RFP (Request for Proposal) outlining the design of the proposed system and detailing the development of the requested channels will be required to be submitted to the Regional Planning Committee prior to approval
- Geographic Efficient (Maximum Score 50 points)
  The ratio of subscriber units to area covered and the channel reuse potential are two subcategories. "The higher the ratio (mobiles divided by square miles of coverage) the more efficient the use of the frequencies. … Those systems which cover large geographic areas will have a greater potential for channel reuse and will therefore receive a high score in this subcategory."

- Givebacks (Maximum score 100 points)
  Consider the number of channels given back
  Consider the extent of availability and usability of those channels to others.

If there are more applicants than frequencies available for a given area, the above criteria will be used to grade each application before the committee.

This process, if required, will be treated as a dispute and the procedures outlined in Section 3.6 using the above criteria will be used to allocate the frequencies.

5. PROCESS FOR HANDLING UNFORMED REGIONS

There are no unformed adjacent Regions to Region 39 and Letters of Concurrence have been received from all eleven adjacent Regions.

6. Coordination with Adjacent Regions

The Regions that are adjacent to or within seventy (70) miles of Region 39 are listed below:

Region 1	State of Alabama	Border
Region 4	State of Arkansas	Border
Region 10	State of Georgia	Border
Region 13	Southern Illinois	Non Border
Region 17	State of Kentucky	Border
Region 23	State of Mississippi	Border
Region 24	State of Missouri	Border

Region 31	State of North Carolina	Border
Region 37	State of South Carolina	Non Border
Region 42	State of Virginia	Border
Region 44	State of West Virginia	Non Border

Region 39 has coordinated channel allocations and received concurrence with all its bordering Regions by providing copies of the Region 39 Plan (including channel allotments) to each adjacent Region using the CAPRAD database and by mailing hard copies of the Plan to the adjacent Region's Chairperson or Convener.

In seeking Regional concurrence, the Chairperson has given copies of this Plan to the Chairperson of Region 1, 4, 10, 13, 17, 23, 24, 31, 37, 42 and 44. The Region 39 Plan will also be available for viewing by all Regions via the NLECTC CAPRAD 700 MHz database and the Region 39 web site, www.region39.org. The CAPRAD pre-coordination database shows those channels available that will not interfere with Region 39 allotments or systems

The CAPRAD database and its associated packing Plan provides minimum channel allotments for all of Region 39's bordering Regions. This method was recommended by the NCC Implementation Subcommittee as a way to assure that adjacent Regions, which did not enter the Regional Planning process immediately, would not find all frequencies assigned in their borders.

Therefore, adjacent Regions 1, 4, 10, 13, 17, 23, 24, 31, 37, 42, and 44 should all be able to satisfy voice and narrowband data requests along their border areas with Region 39. However, if an adjacent Region has difficulties satisfying intra-regional requests due to channel allocation within Tennessee, this committee pledges to work with that adjacent Region to resolve any issues that might hinder interoperability or reduce any benefit to public safety communications.

7. System Design/Efficiency Requirements

7.1 Interference Protection

The frequency allotment list will be based on an assumption that systems will be engineered on an interference-limited basis, not a noise floor-limited basis. Agencies are expected to design their systems for maximum signal levels within their coverage area and minimum levels in the coverage area of other co-channel users. Coverage area is normally the geographical boundaries of the Agency(s) served plus five miles area beyond.

Systems should be designed for minimum signal strength of 40 dBμ in the system coverage area while minimizing signal power out of the coverage area. TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dBμ, or

greater, signal in all systems coverage areas. This may require patterned antennas and extra sites compared to a design that assumes noise limited coverage. Region 39 complies with National Coordination Committee recommendations listed in Appendix K of the Regional Planning Committee Guidelines published by the National Coordination Committee (NCC).

7.2 Spectrum Efficiency Standards

Initial allotments will be made on the basis of 25 kHz channels. To maximize spectrum utilization, prudent engineering practices and receivers of the highest quality must be used in all systems. Given a choice of radios to choose from in a given technology family, agencies should use the units with the best specifications. This Plan will not protect agencies from interference if their systems are under-constructed (i.e.; areas with the established service area having minimum signal strength below 40 dBu), or the systems utilize low quality receivers. The applicant's implementation of best engineering practices will be encouraged by the Regional Planning Committee at all times.

It is the eventual goal of the FCC and the public safety community for radio equipment to meet the requirement of one voice channel per 6.25 KHz of spectrum. *When applying for channels within Region 39, the applicants should acknowledge the deadline for converting all equipment to 6.25 kHz or 6.25 kHz equivalent technology is 12/31/2016*. For narrowband mobile data requests, one mobile data channel will consist of two (2) 6.25 KHz channels/one (1) 12.5 KHz channel. Narrowband 6.25 KHz channels can be aggregated for data use to a maximum bandwidth of 25 KHz. As 6.25 KHz migration evolves, an agency that creates any "orphaned" 6.25 KHz channels should realize that these channels could be allocated to nearby agencies requesting channels to maintain consistent grouping and utilization of 25 KHz blocks within the Region. (See Section 6.3)

Region 39 encourages small agencies to partner with other agencies in multi-agency or regional systems as they promote spectrum efficiency and both small and large agency capacity needs can be met. Loading criteria can also be achieved in multi-agency systems that will allow greater throughput for all agencies involved than that which could be achieved individually.

7.3 Orphaned Channels

The narrowband pool allotments with Region 39 will have a channel bandwidth of 25 kHz. These 25 kHz allotments have been characterized as "Technology Neutral" and flexible enough to accommodate multiple technologies utilizing multiple bandwidths. If agencies choose a technology that requires less than 25 kHz channel bandwidth for their system, there is the potential for residual, "orphaned channels" of 6.25 kHz or 12.5 kHz bandwidth immediately adjacent to the assigned channel within a given county area.

An orphan channel may (if possible) be used at another location within the county area where it was originally approved, if it meets co- and adjacent channel interference criteria. Region 39 will utilize "county areas" as guidelines for channel implementation with the area of Region 39. The definition of "county area" in this Plan is the geographical/political boundaries of a given county, plus a distance of up to 5 miles outside of the county or jurisdictional boundary.

If the channel, or a portion of a channel, is being moved into a "county area" that is within 30 miles of an adjacent Region, Region 39 will receive concurrence from the affected Region. By extending the "county area" by a designated distance, it is anticipated this will increase the possibility that orphaned channel remainders will still be able to be utilized within the "county area", and reduce the potential for channel remainders to be forced to lay dormant and used with a county channel allotment. These movements will be documented on the National Law Enforcement & Corrections Technology Center CAPRAD database.

If the "orphaned channel" remainder does not meet co-channel and adjacent channel interference criteria by moving it within the "county area" as listed above, and it is determined by the Region that the "orphaned channel" cannot be utilized in the Region without exceeding the distance described in the "county area" listed above, Region 39 will submit a Plan amendment to the FCC to repack the channel to a location where its potential use will maintain maximum spectral efficiency. This FCC Plan amendment will require affected Region concurrence.

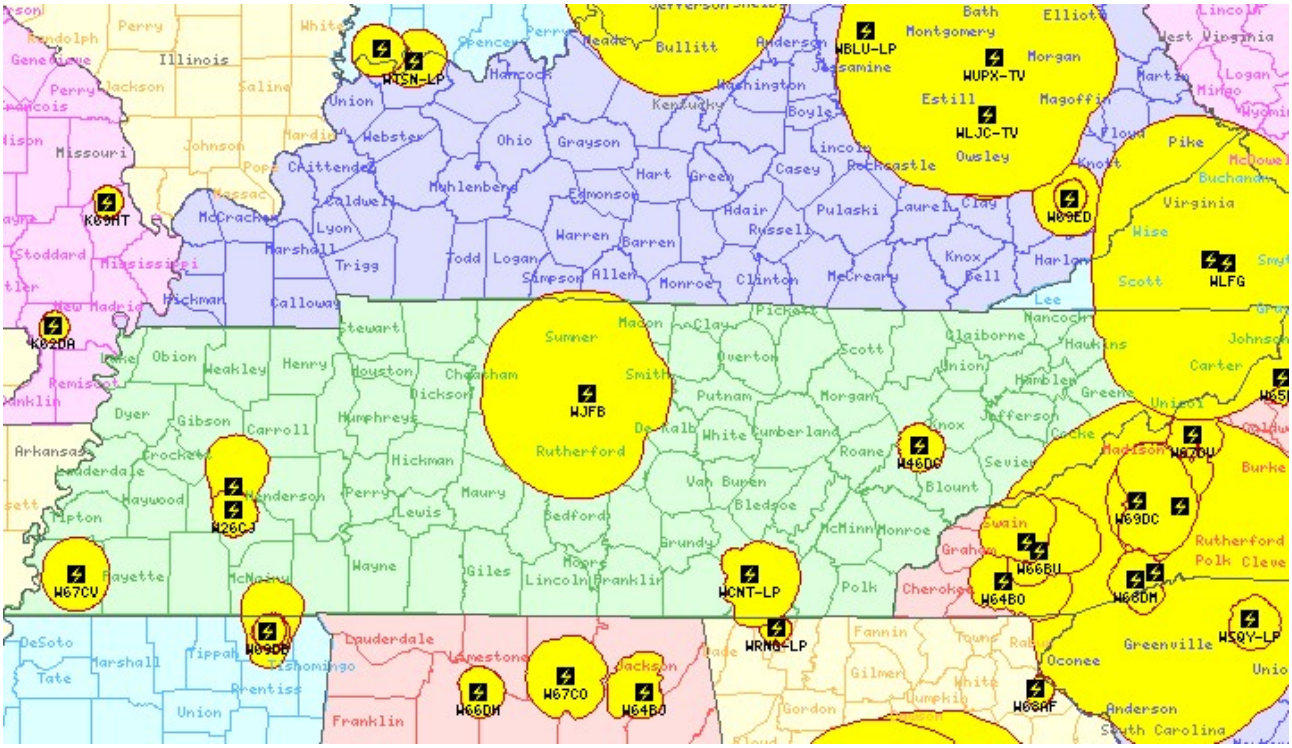
When in the best interest of public safety communications and efficient spectrum use within the Region, the Region 39 Regional Planning Committee shall have the authority to move orphan channel allotments, and/or co-/adjacent-channel allotments affected by the movement of orphan channels, within its "county areas", which are defined above. This is to retain spectrum efficiency and/or minimize co-channel or adjacent channel interference between existing allotments within the Region utilizing disparate bandwidths and technologies.

7.4 System Implementation

There are no incumbent high power broadcast TV stations in Tennessee; however there are several low power or translator TV stations across Tennessee. Two high power stations in other states, Georgia and Virginia, have minimal impact on Tennessee. See table below.

The Region 39 Regional Planning Committee will utilize NCC Implementation Subcommittee documentation titled Appendix L "DTV Transition" that will provide the criteria which will be used, per FCC rules, to protect existing TV stations from land mobile use on 700 MHz public safety channels. Except in the Tri-Cities area, all other areas in Region 39 (State of Tennessee) are capable of immediately implementing systems using any 700 MHz public safety channels. The Tri-Cities area could possibly implement by selectively picking unaffected channels until such time the TV stations

vacate the spectrum. With no restrictions in implementation due to incumbent co-channel broadcasters in the Region, implementation of systems will adhere to guidelines in FCC rule 90.529 (b) and (c). An Agency may file a request with the Regional Chairperson for an extension of time to implement. The request should include all details describing why the agency has not implemented and a new implementation schedule. If necessary, the Regional Chairperson will call a special meeting to determine if the allotment should be extended or if the agency should reapply to the committee for another allotment.



TV Station that affect TN as of May 18, 2005 provided by CARPAD

Region 39 - Tennessee TV Stations

TV Channel 60 – 69 in Tennessee

County	Channel	Call Sign	Location	Latitude NAD83	Longitude NAD83
Madison County	62	W62CJ	Jackson	35°52'41"N	87°43'12"W
	62	W62CJ	Jackson	35°42'22"N	88°44'36"W
	62	W62CJ	Jackson	35°39'47"N	88°45'24"W
	62	W62CJ	Jackson	35°39'47"N	88°45'24"W
	62	W62CJ	Jackson	35°39'47"N	88°45'24"W
	64	W64BZ	Jackson	35°12'2"N	88°58'30"W
	64	W64BZ	Jackson	35°39'47"N	88°45'24"W
	64	W64BZ	Jackson	35°12'41"N	89°48'54"W
	64	W64BZ	Jackson	35°42'22"N	88°44'36"W
	64	W64BZ	Jackson	35°39'47"N	88°45'24"W
	64	W64BZ	Jackson	35°39'47"N	88°45'24"W
McNairy County	62	W62CK	Acton	34°59'41"N	88°31'17"W
	62	W62CK	Acton	34°54'36"N	88°31'17"W
	62	W62CK	Acton	34°54'36"N	88°31'17"W
	66	W66CG	Acton	34°59'41"N	88°31'17"W
	66	W66CG	Acton	34°54'36"N	88°31'17"W
	66	W66CG	Acton	34°54'36"N	88°31'17"W
	66	W66CG	Acton	34°54'36"N	88°31'17"W
	69	W69DB	Acton	34°59'41"N	88°31'17"W
	69	W69DB	Acton	34°54'36"N	88°31'17"W
	69	W69DB	Acton	34°54'36"N	88°31'17"W
	69	W69DB	Acton	34°54'36"N	88°31'17"W
	69	W69DB	Acton	34°40'51"N	88°20'53"W
Sequatchie County	65	WCNT-LP	Chattanooga	35°12'26"N	85°16'52"W
Shelby County	67	W67CV	Memphis	35°12'41"N	89°48'54"W
Stewart County	63	W63CQ	Clarksville, Etc.	36°32'23"N	87°39'45"W
	65	W65DQ	Clarksville, Etc.	36°32'23"N	87°39'45"W
Wilson County	66	WJFB	Lebanon	36°9'13"N	86°22'46"W

7.5 Channel Loading

7.5.1 Loading Tables Voice Channels

EMERGENCY		NON-EMERGENCY	
CHANNELS	UNITS/CHANNEL	CHANNELS	UNITS/CHANNEL
1 - 5	70	1 - 5	80
6 - 10	75	6 - 10	90
11 - 15	80	11 - 15	105
16 - 20	85	16 - 20	120

Agencies requesting additional frequencies must show loading of 100 percent or greater on their existing system. Should a demand for frequencies exist after assignable frequencies become exhausted, any system having frequencies assigned under this Plan four or more years previously and not loaded to at least seventy percent will lose operating authority on several frequencies to bring the system into compliance with the 70 percent loading standard. Frequencies lost in this manner will be reallocated to other agencies to help satisfy the demand for additional frequencies.

7.5.2 Traffic Loading Study Voice or Data Systems

Justification for adding frequencies, or retaining existing frequencies, may be provided by a traffic loading study instead of loading by number of transmitters per channel. It will be the responsibility of the requesting agency to provide a verifiable study showing sufficient airtime usage to merit additional frequencies. A showing of airtime usage, excluding telephone interconnect air time, during the peak busy hour greater than 70 percent per channel on three consecutive days will be required to satisfy loading criteria.

7.5.3 Loading Tables Data Channels 25 KHz, 50 KHz, 100 KHz, and 150 KHz Non Trunked Systems

EMERGENCY or NON EMERGENCY	
CHANNELS	UNITS/CHANNEL
1 or more	120

7.5.4 Expansion of Existing 800 MHz Systems

Existing 800 MHz systems that are to be expanded to include the 700 MHz frequency spectrum will have to meet the requirements of the FCC and both 800 MHz NPSPAC Region 39 Plan and the Region 39 700 MHz Plan. If the two Region 39 Plans are in conflict, the Plan that gives the applicant the greater flexibility will govern.

8. Interoperability Channels

8.1 Introduction

Interoperability FCC Definition of Interoperability
Taken from 98-191 paragraph 76

Interoperability – An essential communications link within pubic safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results.

The ability for agencies to effectively respond to mutual aid requests directly depends on their ability to communicate with each other. Tennessee is subject to many natural disasters and contains regions and facilities, which may be susceptible to a man-made disaster or weapons of mass destruction attack. Mutual aid should be encouraged among agencies. This Plan seeks to facilitate the communications necessary for effective mutual aid.

The State of Tennessee, Emergency Management Agency (TEMA), will administer the 700 MHz interoperability channels via the Statewide Interoperability Executive Committee (SIEC) and State Interoperability Task Force (SITF), under the National Coordination Committee's (NCC) guidelines. The Region 39 700 MHz Regional Planning Committee will work with the Tennessee State Interoperability Executive Committee and three (3) members of the Region 39 700 MHz Regional Planning Committee will participate in the Tennessee State Interoperability Executive Committee (SIEC) and will represent Region 39. If at any time TEMA or the State SIEC is unable to function in the role of administering the interoperability channels in the 700 MHz band, then this committee will assume this role and notify the FCC in writing of the change in administrative duties. See the NCC Implementation Subcommittees **Table of Interoperability Channels in Appendix "E"**

8.2 Tactical Channels

Due to the immediate availability of 700 MHz public safety channels in Tennessee, Region 39 will not set aside additional channels for interoperability use within the Region. It is anticipated the sixty-four FCC designated interoperability channels (6.25 KHz) will be sufficient to provide interoperability (voice and data) within Region 39.

All mobile and portable units operating under this Plan and utilizing 700 MHz channels must be programmed with the minimum number of channels called for either in NCC guidelines or as the Tennessee State Interoperability Executive Committee and SITF specifies. The channel display in these radios will be in accordance with the NCC and SIEC guidelines that have common alphanumeric nomenclature to avoid any misinterpretation of use within Region 39.

8.3 Deployable Systems

In this Plan, Region 39 strongly supports use of deployable systems, both conventional and trunked. Deployable systems are prepackaged systems that can deploy by ground or air to an incident to provide additional coverage and capacity on designated 700 MHz interoperability channels and/or agency specific General Use Channels. This will minimize the expense of installing extensive fixed infrastructure in areas while still providing mission critical functionalities as the Region recognizes the difficulty of providing complete coverage in all areas due to financial, demographic and geographical constraints.

Agencies should have conventional deployable systems capable of being tuned to any of the FCC designated / NCC recommended interoperability tactical channels. Those agencies that are part of a multi-agency trunked system and commonly provide mutual aid to each other are encouraged to have trunked deployable systems that operate on the tactical channels designated by the FCC for this use. The SIEC will develop the operational details for deploying these systems.

It is expected that the tactical channels set aside for trunked operation will be heavily used by deployable systems. Therefore, the tactical channels cannot be assigned to augment general use trunked systems.

8.4 Monitoring of Calling Channels

700 MHz licensees will be responsible for monitoring interoperable calling channels. The SIEC/SITF will develop operational guidelines for this function. **Appendix E** will include NCC documents that display required Interoperability guidelines.

8.5 Incident Command System Standard

Region 39 supports the NCC recommendations regarding the National Incident Management System
(NIMS) and ICS.

9. Future Planning

9.1 Database Maintenance

The CAPRAD pre-coordination database has developed channel allotments in each county area within Tennessee utilizing the U. S. Census Date, 2000, height above average terrain (HAAT) and public safety use curves generated by the Public Safety Wireless Advisory Committee (PSWAC) to provide spectrally efficient frequency allotments. Region 39 will continue to use the CAPRAD pre-coordination database for other 700 MHz spectrum as it becomes available.

9.2 Inter-Regional Dispute Resolution Process

In the event that a dispute arises between Region 39 and an adjacent Region or Regions, regarding spectrum allocations or implementation, which cannot be resolved within 60 days, the parties to the dispute will request a hearing by the National Regional Planning Oversight Committee.

See Appendix H for details and Inter-Regional Dispute Resolution Agreements signed by adjacent Regions 1, 4, 10, 13, 17, 23, 24, 31, 37, 42 and 44.

9.3 Amendment Process

Amendments to the Region 39 Plan will be made at Region 39 RPC meetings. All amendments will be voted on and passed or rejected by a simple majority vote. The Chairman or his designee will make the appropriate changes to the Plan and notify the adjacent Regions for their concurrence. Once the concurrences are received from the adjacent Regions, the Plan will be certified and filed, by the Chairperson, with the FCC for approval. Electronic filing will be the preferred method.

9. 4 Meeting announcements

Meeting announcements will be made per the Region 39 By Laws. Region 39 will utilize the list server, Public Notices issued by the FCC, fax notification, email to individual, associations, agencies and vendors, TN Information Enforcement System (TIES) network, verbal announcements at meetings and / or appropriate publications.

10.0 Certification

I hereby certify that all planning committee meetings, including subcommittee or executive committee meetings were open to the public. A summary of the deliberations of the Committee pursuant to adopting this Plan can be found in Appendix D, Meeting attendance, agendas and other events.

John W. Johnson
December 13, 2005

Chairman, Region 39

Appendices

Appendix A	Bylaws
Appendix B	Region 39 Members, Agencies, Contact Information and Voting Status
Appendix C	Region 39 (Tennessee) Counties and Population Data
Appendix D	List of Meetings, minutes, agendas, chronology

Appendix E
Table of 700 MHz Interoperability Channels

For Specific Uses/Services
*** - Mandatory**

16 CHANNEL SETS	DESCRIPTION	LABEL
Channel 23 & 24	*General Public Safety Services (secondary trunked)*	*7TAC58*
Channel 103 & 104	*General Public Safety Services (secondary trunked)*	*7TAC62*
Channel 183 & 184	*General Public Safety Services (secondary trunked)*	*7TAC66*
Channel 263 & 264	*General Public Safety Services (secondary trunked)*	*7TAC70*
Channel 39 &40	Calling Channel *	7CAL59
Channel 119 & 120	General Public Safety Service *	7TAC63
Channel 199 & 200	General Public Safety Service	7TAC67
Channel 279 & 280	Mobile Data	7DAT71
Channel 63 & 64	Emergency Medical Service	7EMS60
Channel 143 & 144	Fire Service	7FIR64
Channel 223 & 224	Law Enforcement Service	7LAW68
Channel 303 & 304	Mobile Repeater *	7MOB68
Channel 79 & 80	Emergency Medical Service	7EMS61
Channel 159 & 160	Fire Service	7FIR65
Channel 239 & 240	Law Enforcement Service	7LAW69
Channel 319 & 320	Other Public Service *	7TAC73

Channel 657 & 658	*General Public Safety Services (secondary trunked)*	*7TAC74*
Channel 737 & 738	*General Public Safety Services (secondary trunked)*	*7TAC78*
Channel 817 & 818	*General Public Safety Services (secondary trunked)*	*7TAC82*
Channel 897 & 898	*General Public Safety Services (secondary trunked)*	*7TAC86*
Channel 681 & 682	Calling Channel *	7CAL75
Channel 761 & 762	General Public Safety Service *	7TAC79
Channel 841 & 842	General Public Safety Service	7TAC83
Channel 921 & 922	Mobile Data	7DAT87
Channel 641 & 642	Emergency Medical Service	7EMS76
Channel 721 & 742	Fire Service	7FIR80
Channel 801 & 802	Law Enforcement Service	7LAW84
Channel 881 & 882	Mobile Repeater *	7MOB88
Channel 697 & 698	Emergency Medical Service	7EMS77
Channel 777 & 778	Fire Services	7FIR81
Channel 857 & 858	Law Enforcement Service	7LAW85
Channel 937 & 938	Other Public Services*	7TAC89

Project 25 Common Air Interface
Interoperability Channel Technical Parameters

Certain common P25 parameters need to be defined to ensure digital radios operating on the 700 MHz Interoperability Channels can communicate. This is analogous to defining the common CTCSS tone used on NPSPAC analog Interoperability channels.

Network Access Code

In the Project 25 Common Air Interface definition, the Network Access Code (NAC) is analogous to the use of CTCSS and CDCSS signals in analog radio systems. It is a code transmitted in the pre-amble of the P25 signal and repeated periodically throughout the transmission. Its purpose is to provide selective access to and maintain access to a receiver. It is also used to block nuisance and other co-channel signals. There are up to 4096 of these NAC codes. For ease of migration in other frequency bands, a NAC code table was developed which shows a mapping of CTCSS and CDCSS signals into corresponding NAC codes. Document TIA/EIA TSB102.BAAC contains NAC code table and other Project 25 Common Air Interface Reserve Values.

The use of NAC code $293 is required for the 700 MHz Interoperability Channel NAC code.

Talk group ID

In the Project 25 Common Air Interface definition, the Talk group ID on conventional channels is analogous to the use of talk groups in trunking. In order to ensure that all users can communicate, all units should use a common Talk group ID.

Recommendation: Use P25 default value for Talk group ID = $0001

Manufacturer's ID

The Project 25 Common Air Interface allows the ability to define manufacturer specific functions. In order to ensure that all users can communicate, all units should not use a specific Manufacturer's ID, but should use the default value of $00.

Message ID

The Project 25 Common Air Interface allows the ability to define specific message functions. In order to ensure that all users can communicate, all units should use the default Message ID for unencrypted messages of $0000000000000000000.

Encryption Algorithm ID and Key ID

The Project 25 Common Air Interface allows the ability to define specific encryption algorithms and encryption keys. In order to ensure that all users can communicate, encryption should not be used on the Interoperability Calling Channels, all units should use the default Algorithm ID for unencrypted messages of $80 and default Key ID for unencrypted messages of $0000. These same defaults may be used for the other Interoperability channels when encryption is not used.

Use of encryption is allowed on the other Interoperability channels. Regional Planning Committees need to define appropriate Message ID, Encryption Algorithm ID, and Encryption Key ID to be used in the encrypted mode on Interoperability channels.

Appendix F
NCC 700 MHz Pre-Assignment Rules/Recommendations

Introduction

A process for doing the initial block assignments of 700 MHz channels before details of actual system deployments is required. In this initial phase, there is little actual knowledge of what specific equipment is to be deployed and where the sites will be. As a result, a high level simplified method is proposed to establish guidelines for frequency coordination. When actual systems are deployed, additional details will be known and the system designers will be required to select specific sites and supporting hardware to control interference.

Overview

Assignments will be based on a defined service area of each applicant. For Public Safety entities this will normally be a geographically defined area such as city, county or by a data file consisting of line segments creating a polygon that encloses the defined area.

For co-channel assignments, the 40dBμ contour will be allowed to extend beyond the defined service area by 5 miles, depending on the type of environment, urban, suburban

or low density. The interfering co-channel 5 dBμ will be allowed to touch but not overlap the 40dBμ contour of the system being evaluated. All contours are (50,50).

For adjacent and alternate channels, the interfering channels 60 dBμ will be allowed to touch but not overlap the 40 dBμ contour of the system being evaluated. All contours are (50,50).

7.1.1.1 Discussion

The FCC limits the maximum field strength to 40 dB relative to 1μV/m (customarily denoted as 40 dBμ). It is assumed that this limitation will be applied similarly to the way it is applied in the 821-824/866/869 MHz band. That is, a 40 dBμ field strength can be deployed up to a defined distance from the edge of the service area, based on the size of the service area or type of applicant, i.e. city, county or statewide system. This is important as the potential for interference from CMRS infrastructure demands that public safety systems have adequate margins for reliability in the presence of interference. The value of 40 dBμ corresponds to a signal of -92.7 dBm, received by a half-wavelength dipole (λ/2) antenna. The thermal noise floor for a 6.25 kHz receiver would be in the range of -126 dBm, so there is a margin of approximately 33 dB available for "noise limited" reliability. Figure 1 shows show the various interfering sources and how they accumulate to form a composite noise floor that can be used to determine the "reliability" or probability of achieving the desired performance in the presence of various interfering sources with differing characteristics.

Allowing for a 3 dB reduction in the available margin due to CMRS OOBE noise lowers the reliability and/or the channel performance of Public Safety systems. TIA TR8 made this allowance during the meetings in Mesa, AZ, January 2001. In addition, there are various channel bandwidths with different performance criteria and unknown adjacent and alternate channel assignments need to be accounted for. The co-channel and adjacent/alternate sources are shown in the right hand side of Figure 1. There would be a single co-channel source, but potentially several adjacent or alternate channel sources involved.

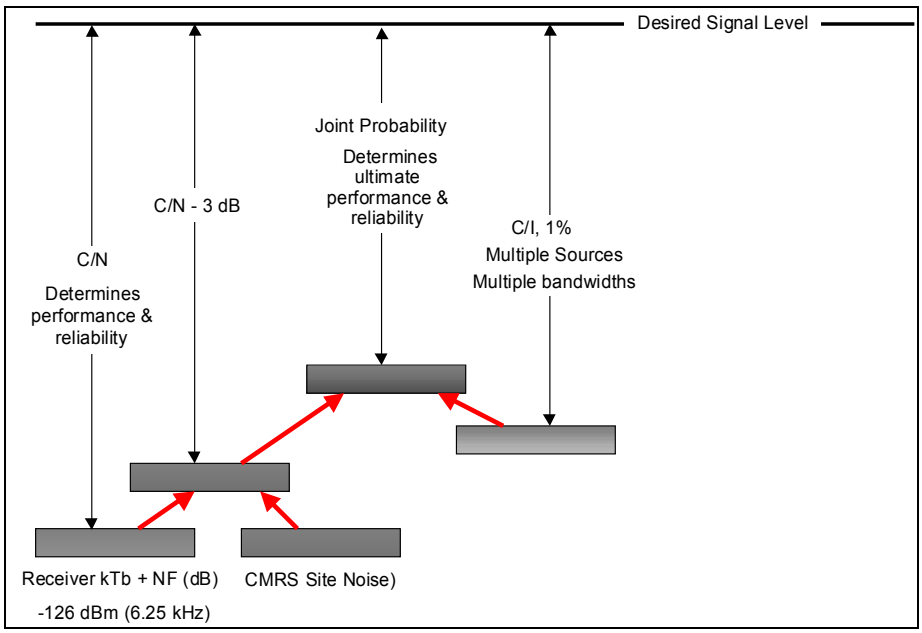


Figure 1 - Interfering Sources Create A "Noise" Level Influencing Reliability

It is recommended that co-channel assignments limit the C/I at the edge (worst case mile) be sufficient to limit that interference to <1%. A C/I ratio of 26.4 dB plus the required capture value required to achieve this goal.. A 17 - 20 dB C/N is required to achieve channel performance. Table 1 shows estimated performance considering the 3 dB noise floor rise at the 40 dBμ signal level. Performance varies due to the different Cf/N requirements of the different modulations and channel bandwidths. These values are appropriate for a mobile on the street, but are considerably short to provide reliable communications to portables inside buildings.

Comparison of Joint Reliability for various configurations				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver ENBW (kHz)	6	6	9	18
Noise Figure(10 dB)	10	10	10	10
Receiver Noise Floor (dBm)	-126.22	-126.22	-124.46	-121.45
Rise in Noise Floor (dB)	3.00	3.00	3.00	3.00
New Receiver Noise Floor (dB)	-123.22	-123.22	-121.46	-118.45
40 dBu = -92.7 dBm	-92.7	-92.7	-92.7	-92.7
Receiver Capture (dB)	10.0	10.0	10.0	10.0
Noise Margin (dB)	30.52	30.52	28.76	25.75
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
C/N Margin (dB)	**13.52**	**13.52**	**10.76**	**5.75**
Standard deviation (8 dB)	8.0	8.0	8.0	8.0
Z	1.690	1.690	1.345	0.718
Noise Reliability (%)	**95.45%**	**95.45%**	**91.06%**	**76.37%**
C/I for <1% prob of capture	36.4	36.4	36.4	36.4
I (dBu)	3.7	3.7	3.7	3.7
I (dBm)	-129.0	-129.0	-129.0	-129.0
Joint Probability (C & I)	**94.2%**	**94.2%**	**90.4%**	**75.8%**
40 dBu = -92.7 dBm @ 770 MHz				

Table 1 Joint Probability For Project 25, 700 MHz Equipment Configurations.

To analyze the impact of requiring portable in building coverage, several scenarios are presented. The different scenarios involve a given separation from the desired sites. Then the impact of simulcast is included to show that the 40 dBμ must be able to fall outside the edge of the service area. From the analysis, recommendations of how far the 40 dBμ extensions should be allowed to occur are made.

Table 2 Estimates urban coverage where simulcast is required to achieve the desired portable in building coverage. Several assumptions are required to use this estimate.

- Distance from the location to each site. Equal distance is assumed.
- CMRS noise is reduced when entering buildings. This is not a guarantee as the type of deployments is unknown. It is possible that CMRS units may have transmitters inside buildings. This could be potentially a large contributor unless the CMRS OOBE is suppressed to TIA's most recent recommendation and the "site isolation" is maintained at 65 dB minimum.
- The 40 dBμ is allowed to extend beyond the edge of the service area boundary.
- Other configurations may be deployed utilizing additional sites, lower tower heights, lower ERP and shorter site separations.

Estimated Performance at 2.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-72.7	-72.7	-72.7	-72.7
Margin (dB)	53.50	53.50	51.80	45.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	20	20	20	20
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	85.60%	85.60%	76.58%	39.17%
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 2, Estimated Performance From Site(s) 2.5 Miles From Typical Urban Buildings.

Table 2 shows for the example case of 2.5 miles that simulcast is required to achieve public safety levels of reliability. The difference in performance margin requirements would require more sites and closer site-to-site separation for wider bandwidth channels.

Figures 2 and 3 show how the configurations would potentially be deployed for a typical site with 240 Watts ERP. This is based on:

- 75 Watt transmitter, 18.75 dBW
- 200 foot tower
- 10 dBd 180 degree sector antenna +10.0 dBd
- 5 dB of cable/filter loss. - 5.0 dB

23.75 dBW ≈ 240 Watts (ERPd)

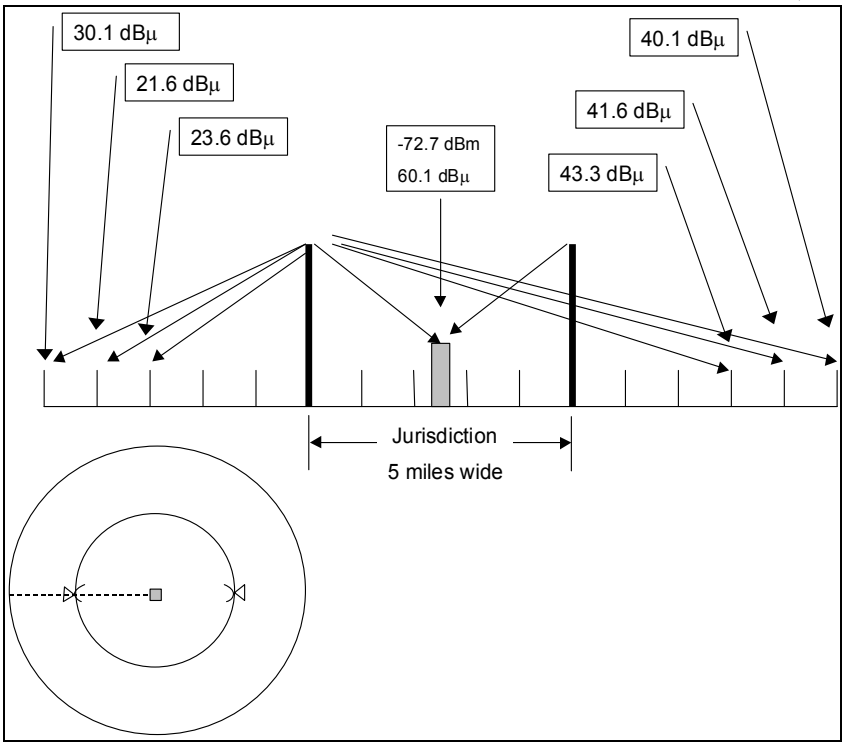


Figure 2 - Field Strength From Left Most Site.

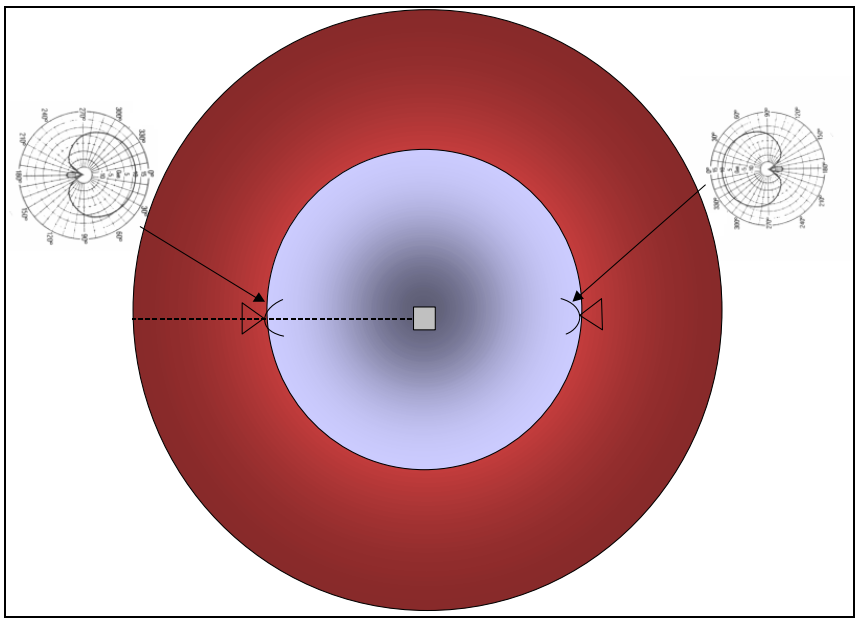


Figure 3 - Antenna Configuration Required To Limit Field Strength Off "Backside"

Figure 2 is for an urbanized area with a jurisdiction of a 5-mile circle. To provide the necessary coverage to portables in buildings at the center of the jurisdiction requires that the sites be placed along the edge of the service area utilizing direction antennas oriented toward the center of the service area (Figure 3). In this case, at 5 miles beyond the edge of the service area, the sites would produce composite field strength of approximately 40 dBμ. Since one site is over 10 dB dominant, the contribution from the other site is not considered. The control of the field strength behind the site relies on a 20 dB antenna with a Front to Back Ratio (F/B) specification as shown in Figure 3. This performance may be optimistic due to backscatter off local obstructions in urbanized areas. However, use of antennas on the sides of buildings can assist in achieving better F/B ratios and the initial planning is not precise enough to prohibit using the full 20 dB.

The use of a single site at the center of the service area is not normally practical. To provide the necessary signal strength at the edge of the service area would produce field strength 5 miles beyond in excess of 44 dBμ. However, if the high loss buildings were concentrated at the service area's center, then potentially a single site could be deployed, assuming that the building loss sufficiently decreases near the edge of the service area allowing a reduction in ERP to achieve the desired reliability.

The down tilting of antennas to control the 40 dBμ is not practical as the difference in angular discrimination from a 200-foot tall tower at 2.5 miles and 10 miles is approximately 0.6 degrees.

Tables 3 and 4 represent the same configuration, but for less dense buildings. In these cases, the distance to extend the 40 dBm can be determined from Table Z. Recommendations are made in Table 6.

Estimated Performance at 3.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-77.7	-77.7	-77.7	-77.7
Margin (dB)	48.50	48.50	46.80	40.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	15	15	15	15
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	**85.60%**	**85.60%**	**76.58%**	**39.17%**
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 3 - Lower Loss Buildings, 3.5 Mile From Site(s)

Estimated Performance at 5.0 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-82.7	-82.7	-82.7	-82.7
Margin (dB)	43.50	43.50	41.80	35.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	10	10	10	10
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	**85.60%**	**85.60%**	**76.58%**	**39.17%**
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 4 - Low Loss Buildings, 5.0 Miles From Site(s)

Note that the receive signals were adjusted to offset the lowered building penetration loss. This produces the same numerical reliability results, but allows increasing the site to building separation and this in turn lowers the magnitude of the "overshoot" across the service area.

Table 5 shows the field strength for a direct path and for a path reduced by a 20 dB F/B antenna. This allows the analysis to be simplified for the specific example being discussed.

Overshoot Distance (mi)	Field Strength (dBμ)	20 dB F/B (dBμ)
1	73.3	53.3
2	63.3	43.3
2.5	60.1	40.1
3	57.5	37.5
4	53.3	33.5
5	50.1	30.1
...	...	
10	40.1	
11	38.4	

12	37.5	
13	36.0	
14	34.5	
15	33.0	

Table 5 - Field Strength Vs. Distance From Site

This allows the overshoot to be 11 miles so the extension of the 40 dbm can be 4 miles for suburbanized territory. For the more rural territory, the limit is the signal strength off the back of the antenna. So the result is that for various types of urbanized areas the offset of the 40 dbm should be:

Type of Area	Extension (mi.)
Urban (20 dB Buildings)	5
Suburban (15 dB Buildings)	4
Rural (10 dB Buildings)	3

Table 6 - Recommended Extension Distance Of 40 Dbμ Field Strength

The 40 dBμ can then be constructed based on the defined service area without having to perform an actual prediction. Since the 40 dBμ is beyond the edge of the service area, some relaxation in the level of I is reasonable. Therefore a 35 dB ratio is recommended and is consistent with what is currently being licensed in the 821-824/866-869 MHz Public Safety band.

Co-Channel Recommendation

- Allow the constructed 40 dBμ (50,50) to extend beyond the edge of the defined service area by the distance indicated in Table 6.
- Allow the Interfering 5 dBμ (50,50) to intercept but not overlap the 40 dBμ contour.

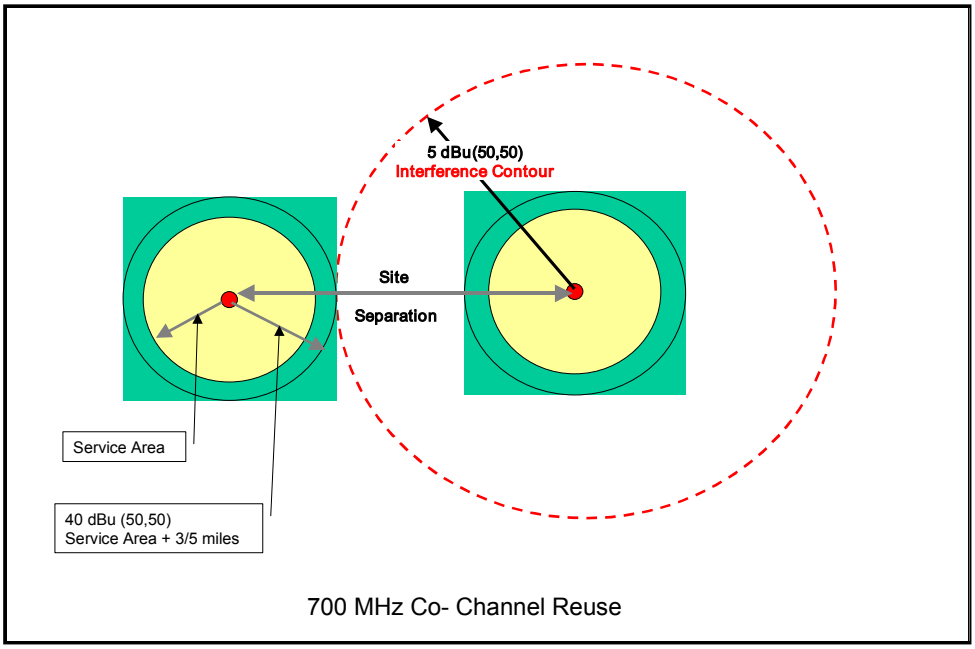


Figure 4 - Co-Channel Reuse Criterion

Adjacent and alternate Channel Considerations

Adjacent and alternate channels are treated as being noise sources that alter the composite noise floor of a victim receiver. Using the 47 CFR § 90.543 values of ACCP can facilitate the coordination of adjacent and alternate channels. The C/I requirements for <1% interference can be reduced by the value of ACCPR. For example to achieve an X dB C/I for the adjacent channel that is -40 dBc a C/I of [X-40] dB is required. Where the alternate channel ACP value is -60 dBc, then the C/I = [X-60] dB is the goal for assignment(s). There is a compounding of interference energy, as there are numerous sources, i.e. co channel, adjacent channels and alternate channels plus the noise from CMRS OOBE.

There is insufficient information in 47 CFR § 90.543 to include the actual receiver performance. Receivers typically have "skirts" that allow energy outside the bandwidth of interest to be received. In addition, the FCC defines ACCP differently than does the TIA. The term used by the FCC is the same as the TIA definition of ACP. The subtle difference is that ACCP defines the energy intercepted by a defined receiver filter. ACP defines the energy in a measured bandwidth that is typically wider than the receiver. As a result, the FCC values are optimistic at very close spacing and somewhat pessimistic at wider spacing, as the typical receiver filter is less than the channel bandwidth.

In addition, as a channel bandwidth is increased, the total noise is allowed to rise, as it is initially defined in a 6.25 kHz channel bandwidth. However, the effect is diminished at very close spacing as the noise is rapidly falling off. At greater spacing, the noise is essentially flat and the receiver's filter limits the noise to the specified 3 dB rise in the thermal noise floor.

Digital receivers tend to be less tolerant to interference than analog. Therefore a 3 dB reduction in the C/(I+N) can reduce a DAQ = 3 to a DAQ = 2 which is threshold to complete receiver muting. Therefore at least 17 dB plus the margin for keeping the interference below 1% probability requires a total margin of 43.4 dB. However, this margin would be at the edge of the service area and the 40 dBμ is allowed to extend past the edge of the service area.

Frequency drift is controlled by the FCC requirement for 0.4-ppm stability when locked. This equates to approximately a 1 dB standard deviation, which is negligible when associated with the recommended initial lognormal standard deviation of 8 dB and can be ignored.

Project 25 requires that a transceiver receiver have an ACIPR of 60 dB. This implies that an ACCPR ≥ 65 dB will exist for a "companion receiver". A companion receiver is one that is designed for the specific modulation. At this time the highest likelihood is that receivers will be deploying the following receiver bandwidths at the following channel bandwidths.

Estimated Receiver Parameters	
Channel Bandwidth	Receiver Bandwidth
6.25 kHz	5.5 kHz
12.5 kHz	5.5 or 9 kHz
25 kHz	18.0 kHz

Table 7 - Estimated Receiver Parameters

Based on 47 CFR ¶ 90.543 and the P25 requirement for an ACCPR ≥ 65 dB into a 6.0 kHz channel bandwidth and leaving room for a migration from Phase 1 to Phase 2, allows for making the simplifying assumption that 65 dB ACCPR is available for both adjacent 25 kHz block.

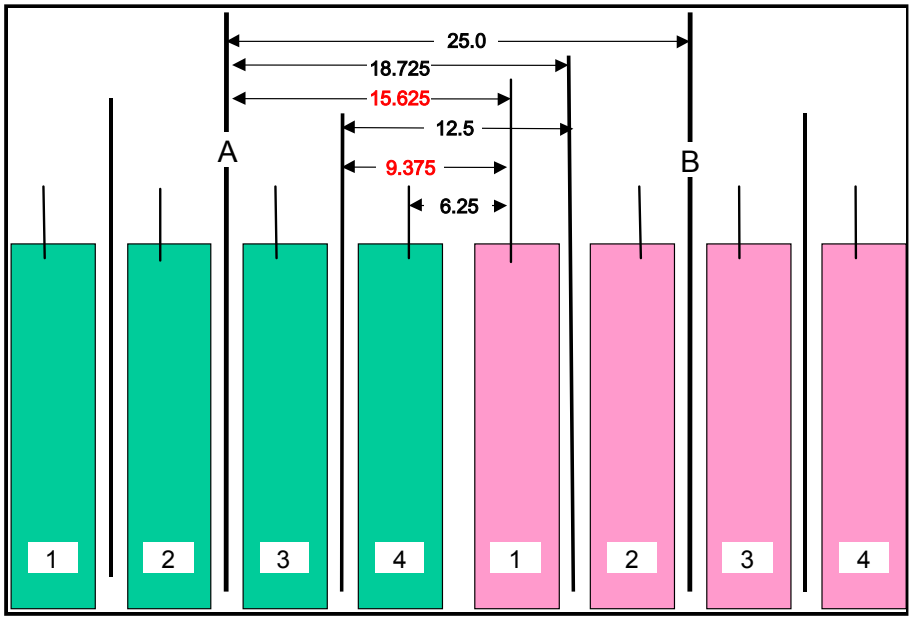


Figure 5, Potential Frequency Separations

Base initial (presorts) on 25 kHz channels. This provides the maximum flexibility by using 65 dB ACCPR for all but one possible combination of 6.25 kHz channels within the 25 kHz allotment.

Case	ACCPR
25 kHz	65 dB
18.725 kHz	65 dB
15.625 kHz	>40 dB
12.5 kHz	65 dB
9.375 kHz	>40 dB
6.25 kHz	65 dB

Table 8 - ACCPR Values For Potential Frequency Separations

All cases meet or exceed the FCC requirement. The most troublesome cases occur where the wider bandwidths are working against a Phase 2 narrowband 6.25 kHz channel. If system designers keep this consideration in mind and move the edge 6.25 kHz channels inward on their own systems, then a constant value of 65 dB ACCPR can be applied across all 25 kHz channels regardless of what is eventually deployed.

For other blocks, it must be assumed that transmitter filtering in addition to transmitter performance improvements with greater frequency separation will further reduce the ACCPR.

Therefore it is recommended that a consistent value of 65 dB ACCPR be used for coordinating adjacent 25 kHz channel blocks. Rounding to be conservative due to the possibility of multiple sources allows the “I” contour to be approximately 20 dB above the 40 dBμ contour, 60 dBμ.

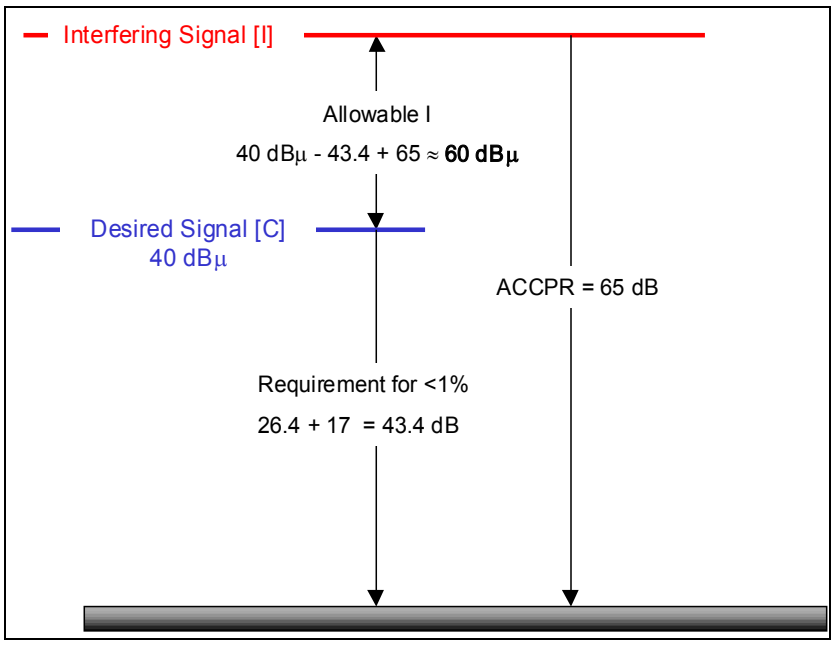


Figure 6 - Adjusted Adjacent 25 kHz Channel Interfering Contour Value

An adjacent Interfering (25 kHz) channel shall be allowed to have its 60 dBμ (50,50) contour touch but not overlap the 40 dBμ (50,50) contour of a system being evaluated. Evaluations should be made in both directions.

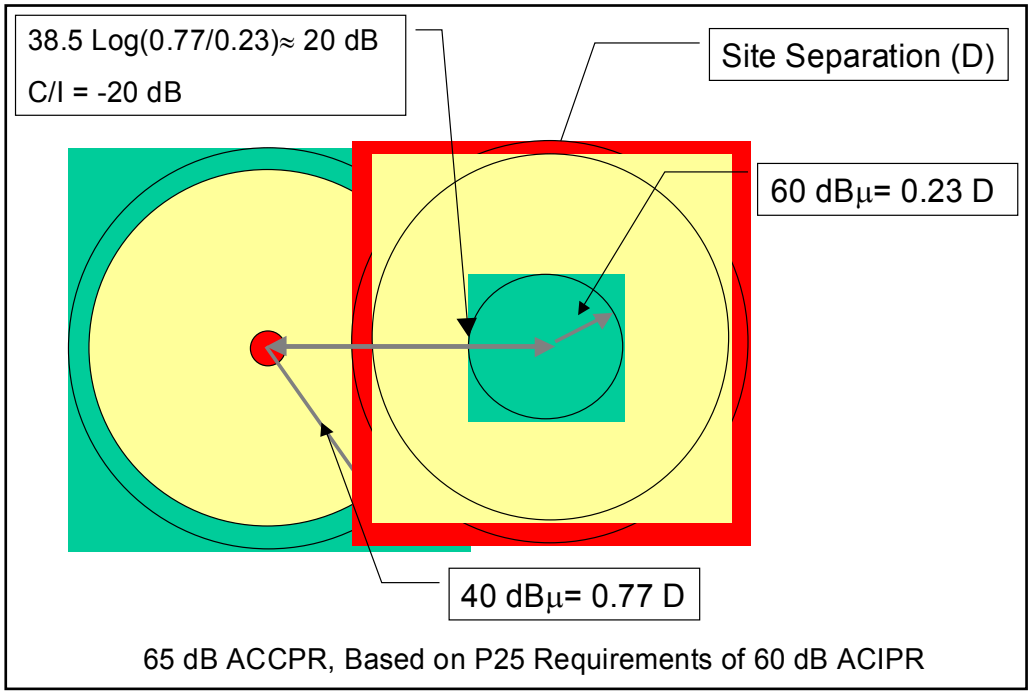


Figure 7 - Example Of Adjacent/Alternate Overlap Criterion

This simple method is only adequate for presorting large blocks to potential entities. A more detailed analysis should be executed in the actual design phase to take all the issues into consideration. Additional factors that should be considered include:

- Degree of Service Area Overlap
- Different size of Service Areas
- Different ERP's and HAAT's
- Actual Terrain and Land Usage
- Differing User Reliability Requirements
- Migration from Project 25 Phase 1 to Phase 2
- Actual ACCP
- Balanced Systems
- Mobiles vs. Portables
- Use of voting
- Use of simulcast
- Radio specifications
- Simplex Operation
- Future unidentified requirements.

Special attention needs to be paid to the use of simplex operation. In this case, an interferer can be on an offset adjacent channel and in extremely close proximity to the victim receiver. This is especially critical in public safety where simplex operations are frequently used at a fire scene or during police operation. This type operation is also quite common in the lower frequency bands. In those cases, evaluation of base-to-base as well as mobile-to-mobile interference should be considered and evaluated.

Carrier to Interference Requirements

There are two different ways that interference is considered.

- Co Channel
- Adjacent and Alternate Channels

Both involve using a C/I ratio. The C/I ratio requires a probability be assigned. For example, a 10% Interference is specified; the C/I implies 90% probability of successfully achieving the desired ratio. At 1% interference, means that there is a 99% probability of achieving the desired C/I.

$$\frac{C}{I}\% = \frac{1}{2} \bullet erfc\left(\frac{\frac{C}{I}\text{margin}}{2\sigma}\right) \tag{1}$$

This can also be written in a form using the standard deviate unit (Z). In this case the Z for the desired probability of achieving the C/I is entered. For example, for a 90% probability of achieving the necessary C/I, $Z = 1.28$.

$$\frac{C}{I}\% = Z \cdot \sqrt{2} \cdot \sigma \tag{2}$$

The most common requirements for several typical lognormal standard deviations (σ) are included in the following table based on Equation (2).

Location Standard Deviation (σ) dB	5.6	6.5	8	10
Probability %				
10%	10.14 dB	11.77 dB	14.48 dB	18.10 dB
5%	13.07 dB	15.17 dB	18.67 dB	23.33 dB
4%	13.86 dB	16.09 dB	19.81 dB	24.76 dB
3%	14.90 dB	17.29 dB	21.28 dB	26.20 dB
2%	16.27 dB	18.88 dB	23.24 dB	29.04 dB
1%	18.45 dB	21.42 dB	26.36 dB	32.95 dB

Table A1 - Probability Of Not Achieving C/I For Various Location Lognormal Standard Deviations

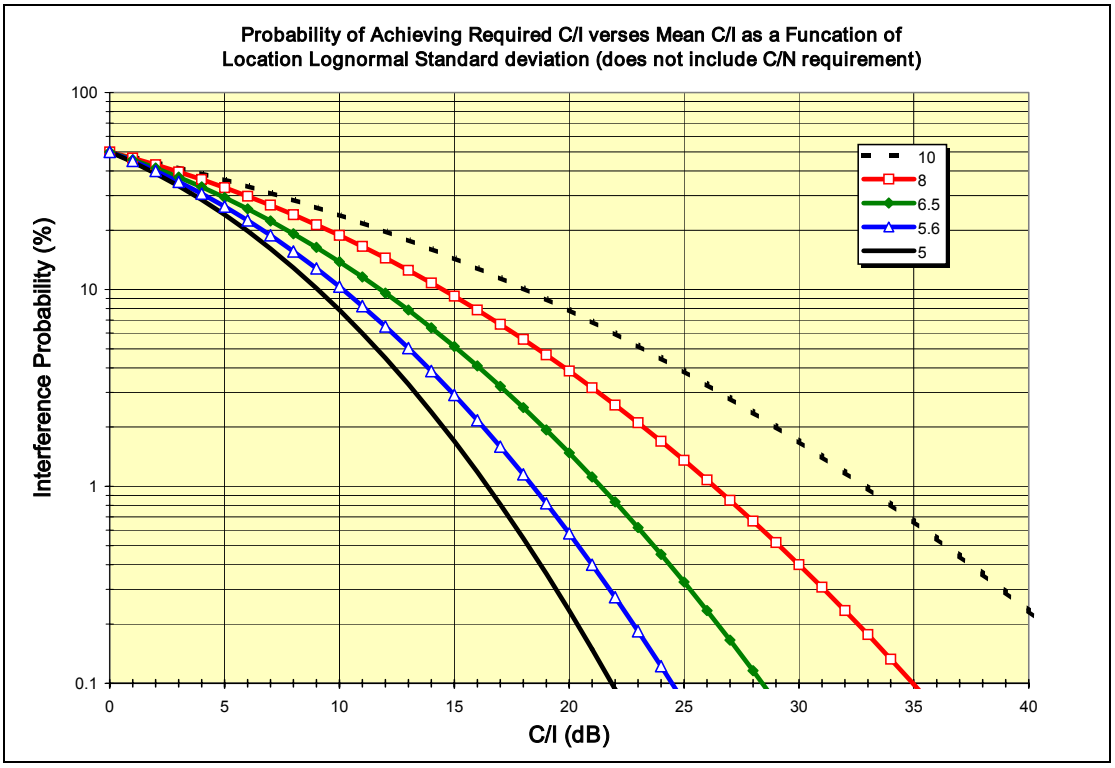


Figure A1, Probability Of Achieving Required C/I As A Function Of Location Standard Deviation

For co-channel the margin needs to include the "capture" requirement. When this is done, then a 1% probability of co channel interference can be rephrased to mean, there is a 99% probability that the "capture ratio" will be achieved. The capture ratio varies with the type of modulation. Older analog equipment has a capture ratio of approximately 7 dB. Project 25 FDMA is specified at 9 dB. Figure A1 shows the C/I requirement without including the capture requirement.

The 8 dB values for lognormal location standard deviation is reasonable when little information is available. Later when a detailed design is required, additional details and high-resolution terrain and land usage databases will allow a lower value to be used. The TIA recommended value is 5.6 dB. This provides the additional flexibility necessary to complete the design

To determine the desired probability that both the C/N and C/I will be achieved requires that a joint probability be determined. Figure A2 shows the effects of a family of various levels of C/N reliability and the joint probability (Y-axis) in the presence of various probabilities of Interference. Note that at 99% reliability with 1% interference (X-axis) that the reduction is nearly the difference. This is because the very high noise reliability is degraded by the interference, as there is little probability that the noise criterion will not be satisfied. At 90%, the 1% interference has a greater likelihood that it will occur simultaneously when the noise criterion not being met, resulting is a less degradation of the 90%

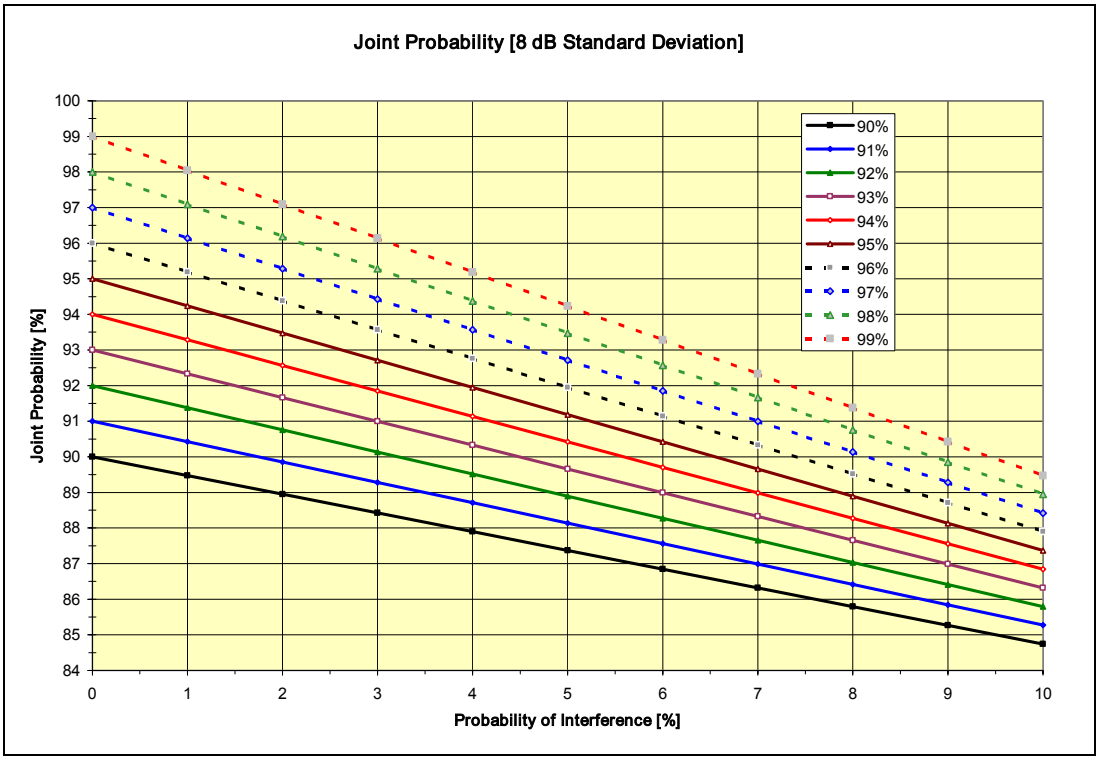


Figure A2 - Effect Of Joint Probability On The Composite Probability

For adjacent and alternate channels, the channel performance requirement must be added to the C/I ratio. When this is applied, then a 1% probability of adjacent/alternate channel interference can be rephrased to mean, there is a 99% probability that the "channel performance ratio" will be achieved.

Appendix G

The Region 39 Channel allocations have been established by the National Law Enforcement & Corrections Technology Center Telecommunications Council's (NLECTC) CAPRAD channel packing program. Region 39 anticipates an open filing window where applicants can apply for available channels in their county area. A "County Area" is defined as an area consisting of the area within the county as well as a distance of up to 5 miles outside of the county. It is anticipated this extended county area will enable Region 39 to maximize channel re-use of any "orphan" remainders.

Overall Channel Allocation of the 700 MHz Spectrum

Voice Bands

Class	BandWidth	Channel Pairs	Blocked Pairs	Allotted Pairs	Allotted Count
General Use	6.25 KHz	616	0	0	0
General Use	12.5 KHz	308	0	0	0
General Use	25.0 KHz	154	0	154	801
Interoperability	6.25 KHz	56	0	0	0
Interoperability	12.5 KHz	28	0	0	0
Secondary Trunking	6.25 KHz	16	0	0	0
Secondary Trunking	12.5 KHz	8	0	0	0
I/O Nationwide Call	6.25 KHz	4	0	0	0
I/O Nationwide Call	12.5 KHz	2	0	0	0
I/O Low Speed Data	6.25 KHz	4	0	0	0
I/O Low Speed Data	12.5 KHz	2	0	0	0
State License	6.25 KHz	192	0	0	0
State License	12.5 KHz	96	0	0	0
State License	25.0 KHz	48	0	48	829
Low Power	6.25 KHz	24	0	0	0
Low Power	12.5 KHz	12	0	0	0

	Reserve	6.25 KHz	48	48	0	0

Data Bands

	Class	BandWidth	Channel Pairs	Blocked Pairs	Allotted Pairs	Allotted Count
	General Use	50 KHz	48	0	0	0
	General Use	100 KHz	32	0	0	0
	General Use	150 KHz	16	0	16	112
	Interoperability	50 KHz	18	0	0	0
	Interoperability	100 KHz	12	0	0	0
	Interoperability	150 KHz	6	0	0	0
	Reserve	50 KHz	54	54	0	0
	Reserve	100 KHz	36	36	0	0
	Reserve	150 KHz	18	18	0	0

The above information is current as of May 18, 2005

Region 39 - Tennessee
Channel Allotments by Class

General Use

County Area	Band	FCC Channel Number	Base Frequency	Mobile Frequency	Notation
Anderson	Voice 25KHz	57-60	764.362500	794.362500	
	Voice 25KHz	125-128	764.787500	794.787500	
	Voice 25KHz	169-172	765.062500	795.062500	
	Voice 25KHz	357-360	766.237500	796.237500	
	Voice 25KHz	397-400	766.487500	796.487500	
	Voice 25KHz	481-484	773.012500	803.012500	
	Voice 25KHz	557-560	773.487500	803.487500	
	Voice 25KHz	625-628	773.912500	803.912500	
	Voice 25KHz	705-708	774.412500	804.412500	
	Voice 25KHz	873-876	775.462500	805.462500	
	Data 150KHz	79-81	770.975000	800.975000	
Bedford	Voice 25KHz	321-324	766.012500	796.012500	
	Voice 25KHz	381-384	766.387500	796.387500	
	Voice 25KHz	493-496	773.087500	803.087500	
	Voice 25KHz	549-552	773.437500	803.437500	
	Voice 25KHz	593-596	773.712500	803.712500	
	Voice 25KHz	633-636	773.962500	803.962500	
	Voice 25KHz	833-836	775.212500	805.212500	
	Data 150KHz	67-69	770.375000	800.375000	
Benton	Voice 25KHz	49-52	764.312500	794.312500	
	Voice 25KHz	133-136	764.837500	794.837500	
	Voice 25KHz	177-180	765.112500	795.112500	
	Voice 25KHz	337-340	766.112500	796.112500	
	Voice 25KHz	493-496	773.087500	803.087500	
	Voice 25KHz	533-536	773.337500	803.337500	
	Voice 25KHz	577-580	773.612500	803.612500	
	Voice 25KHz	709-712	774.437500	804.437500	
	Data 150KHz	88-90	771.425000	801.425000	
Bledsoe	Voice 25KHz	49-52	764.312500	794.312500	
	Voice 25KHz	253-256	765.587500	795.587500	
	Voice 25KHz	537-540	773.362500	803.362500	
	Voice 25KHz	629-632	773.937500	803.937500	
	Voice 25KHz	745-748	774.662500	804.662500	
	Data 150KHz	40-42	769.025000	799.025000	
Blount	Voice 25KHz	137-140	764.862500	794.862500	
	Voice 25KHz	293-296	765.837500	795.837500	
	Voice 25KHz	413-416	766.587500	796.587500	

	Voice 25KHz	453-456	766.837500	796.837500
	Voice 25KHz	505-508	773.162500	803.162500
	Voice 25KHz	573-576	773.587500	803.587500
	Voice 25KHz	637-640	773.987500	803.987500
	Voice 25KHz	741-744	774.637500	804.637500
	Voice 25KHz	821-824	775.137500	805.137500
	Voice 25KHz	877-880	775.487500	805.487500
	Data 150KHz	31-33	768.575000	798.575000
Bradley	Voice 25KHz	17-20	764.112500	794.112500
	Voice 25KHz	97-100	764.612500	794.612500
	Voice 25KHz	161-164	765.012500	795.012500
	Voice 25KHz	389-392	766.437500	796.437500
	Voice 25KHz	477-480	766.987500	796.987500
	Voice 25KHz	541-544	773.387500	803.387500
	Voice 25KHz	597-600	773.737500	803.737500
	Voice 25KHz	677-680	774.237500	804.237500
	Voice 25KHz	717-720	774.487500	804.487500
	Voice 25KHz	825-828	775.162500	805.162500
	Data 150KHz	79-81	770.975000	800.975000
Campbell	Voice 25KHz	41-44	764.262500	794.262500
	Voice 25KHz	133-136	764.837500	794.837500
	Voice 25KHz	381-384	766.387500	796.387500
	Voice 25KHz	445-448	766.787500	796.787500
	Voice 25KHz	509-512	773.187500	803.187500
	Voice 25KHz	633-636	773.962500	803.962500
	Voice 25KHz	753-756	774.712500	804.712500
	Voice 25KHz	865-868	775.412500	805.412500
	Data 150KHz	34-36	768.725000	798.725000
Cannon	Voice 25KHz	137-140	764.862500	794.862500
	Voice 25KHz	329-332	766.062500	796.062500
	Voice 25KHz	405-408	766.537500	796.537500
	Voice 25KHz	457-460	766.862500	796.862500
	Voice 25KHz	517-520	773.237500	803.237500
	Data 150KHz	64-66	770.225000	800.225000
Carroll	Voice 25KHz	41-44	764.262500	794.262500
	Voice 25KHz	293-296	765.837500	795.837500
	Voice 25KHz	365-368	766.287500	796.287500
	Voice 25KHz	413-416	766.587500	796.587500
	Voice 25KHz	453-456	766.837500	796.837500
	Voice 25KHz	517-520	773.237500	803.237500
	Voice 25KHz	561-564	773.512500	803.512500
	Voice 25KHz	601-604	773.762500	803.762500
	Voice 25KHz	741-744	774.637500	804.637500
	Data 150KHz	34-36	768.725000	798.725000
Carter	Voice 25KHz	45-48	764.287500	794.287500
	Voice 25KHz	161-164	765.012500	795.012500
	Voice 25KHz	201-204	765.262500	795.262500
	Voice 25KHz	293-296	765.837500	795.837500
	Voice 25KHz	437-440	766.737500	796.737500
	Data 150KHz	31-33	768.575000	798.575000
Cheatham	Voice 25KHz	213-216	765.337500	795.337500
	Voice 25KHz	293-296	765.837500	795.837500
	Voice 25KHz	437-440	766.737500	796.737500
	Voice 25KHz	529-532	773.312500	803.312500

	Voice 25KHz	569-572	773.562500	803.562500
	Voice 25KHz	621-624	773.887500	803.887500
	Data 150KHz	79-81	770.975000	800.975000
Chester	Voice 25KHz	45-48	764.287500	794.287500
	Voice 25KHz	369-372	766.312500	796.312500
	Voice 25KHz	605-608	773.787500	803.787500
	Voice 25KHz	745-748	774.662500	804.662500
	Voice 25KHz	917-920	775.737500	805.737500
	Data 150KHz	31-33	768.575000	798.575000
Claiborne	Voice 25KHz	53-56	764.337500	794.337500
	Voice 25KHz	249-252	765.562500	795.562500
	Voice 25KHz	541-544	773.387500	803.387500
	Voice 25KHz	589-592	773.687500	803.687500
	Voice 25KHz	709-712	774.437500	804.437500
	Voice 25KHz	941-944	775.887500	805.887500
	Data 150KHz	76-78	770.825000	800.825000
Clay	Voice 25KHz	133-136	764.837500	794.837500
	Voice 25KHz	293-296	765.837500	795.837500
	Voice 25KHz	421-424	766.637500	796.637500
	Voice 25KHz	545-548	773.412500	803.412500
	Voice 25KHz	637-640	773.987500	803.987500
	Voice 25KHz	829-832	775.187500	805.187500
	Data 150KHz	58-60	769.925000	799.925000
Cocke	Voice 25KHz	205-208	765.287500	795.287500
	Voice 25KHz	289-292	765.812500	795.812500
	Voice 25KHz	353-356	766.212500	796.212500
	Voice 25KHz	537-540	773.362500	803.362500
	Voice 25KHz	669-672	774.187500	804.187500
	Data 150KHz	88-90	771.425000	801.425000
Coffee	Voice 25KHz	97-100	764.612500	794.612500
	Voice 25KHz	341-344	766.137500	796.137500
	Voice 25KHz	353-356	766.212500	796.212500
	Voice 25KHz	421-424	766.637500	796.637500
	Voice 25KHz	437-440	766.737500	796.737500
	Voice 25KHz	569-572	773.562500	803.562500
	Voice 25KHz	609-612	773.812500	803.812500
	Voice 25KHz	705-708	774.412500	804.412500
	Voice 25KHz	861-864	775.387500	805.387500
	Voice 25KHz	941-944	775.887500	805.887500
	Data 150KHz	79-81	770.975000	800.975000
Crockett	Voice 25KHz	349-352	766.187500	796.187500
	Voice 25KHz	437-440	766.737500	796.737500
	Voice 25KHz	513-516	773.212500	803.212500
	Voice 25KHz	665-668	774.162500	804.162500
	Voice 25KHz	877-880	775.487500	805.487500
	Data 150KHz	79-81	770.975000	800.975000
Cumberland	Voice 25KHz	13-16	764.087500	794.087500
	Voice 25KHz	241-244	765.512500	795.512500

	Voice	25KHz	353-356	766.212500	796.212500
	Voice	25KHz	417-420	766.612500	796.612500
	Voice	25KHz	465-468	766.912500	796.912500
	Voice	25KHz	549-552	773.437500	803.437500
	Voice	25KHz	833-836	775.212500	805.212500
	Data	150KHz	76-78	770.825000	800.825000
Davidson	Voice	25KHz	49-52	764.312500	794.312500
	Voice	25KHz	93-96	764.587500	794.587500
	Voice	25KHz	133-136	764.837500	794.837500
	Voice	25KHz	201-204	765.262500	795.262500
	Voice	25KHz	241-244	765.512500	795.512500
	Voice	25KHz	281-284	765.762500	795.762500
	Voice	25KHz	325-328	766.037500	796.037500
	Voice	25KHz	365-368	766.287500	796.287500
	Voice	25KHz	417-420	766.612500	796.612500
	Voice	25KHz	477-480	766.987500	796.987500
	Voice	25KHz	489-492	773.062500	803.062500
	Voice	25KHz	553-556	773.462500	803.462500
	Voice	25KHz	597-600	773.737500	803.737500
	Voice	25KHz	637-640	773.987500	803.987500
	Voice	25KHz	709-712	774.437500	804.437500
	Voice	25KHz	749-752	774.687500	804.687500
	Voice	25KHz	789-792	774.937500	804.937500
	Voice	25KHz	829-832	775.187500	805.187500
	Voice	25KHz	869-872	775.437500	805.437500
	Voice	25KHz	945-948	775.912500	805.912500
	Data	150KHz	49-51	769.475000	799.475000
	Data	150KHz	70-72	770.525000	800.525000
	Data	150KHz	88-90	771.425000	801.425000
De Kalb	Voice	25KHz	53-56	764.337500	794.337500
	Voice	25KHz	245-248	765.537500	795.537500
	Voice	25KHz	433-436	766.712500	796.712500
	Voice	25KHz	485-488	773.037500	803.037500
	Voice	25KHz	589-592	773.687500	803.687500
	Voice	25KHz	785-788	774.912500	804.912500
	Data	150KHz	55-57	769.775000	799.775000
Decatur	Voice	25KHz	125-128	764.787500	794.787500
	Voice	25KHz	217-220	765.362500	795.362500
	Voice	25KHz	353-356	766.212500	796.212500
	Voice	25KHz	441-444	766.762500	796.762500
	Voice	25KHz	589-592	773.687500	803.687500
	Voice	25KHz	781-784	774.887500	804.887500
	Voice	25KHz	877-880	775.487500	805.487500
	Data	150KHz	70-72	770.525000	800.525000
Dickson	Voice	25KHz	129-132	764.812500	794.812500
	Voice	25KHz	321-324	766.012500	796.012500
	Voice	25KHz	361-364	766.262500	796.262500
	Voice	25KHz	409-412	766.562500	796.562500
	Voice	25KHz	549-552	773.437500	803.437500
	Voice	25KHz	593-596	773.712500	803.712500
	Voice	25KHz	633-636	773.962500	803.962500
	Voice	25KHz	713-716	774.462500	804.462500
	Voice	25KHz	753-756	774.712500	804.712500
	Voice	25KHz	833-836	775.212500	805.212500

	Data 150KHz	64-66	770.225000	800.225000
Dyer	Voice 25KHz	45-48	764.287500	794.287500
	Voice 25KHz	125-128	764.787500	794.787500
	Voice 25KHz	177-180	765.112500	795.112500
	Voice 25KHz	241-244	765.512500	795.512500
	Voice 25KHz	321-324	766.012500	796.012500
	Voice 25KHz	409-412	766.562500	796.562500
	Voice 25KHz	449-452	766.812500	796.812500
	Voice 25KHz	493-496	773.087500	803.087500
	Voice 25KHz	597-600	773.737500	803.737500
	Voice 25KHz	637-640	773.987500	803.987500
	Voice 25KHz	917-920	775.737500	805.737500
	Data 150KHz	88-90	771.425000	801.425000
Fayette	Voice 25KHz	53-56	764.337500	794.337500
	Voice 25KHz	217-220	765.362500	795.362500
	Voice 25KHz	293-296	765.837500	795.837500
	Voice 25KHz	365-368	766.287500	796.287500
	Voice 25KHz	441-444	766.762500	796.762500
	Voice 25KHz	509-512	773.187500	803.187500
	Voice 25KHz	557-560	773.487500	803.487500
	Voice 25KHz	601-604	773.762500	803.762500
	Voice 25KHz	741-744	774.637500	804.637500
	Voice 25KHz	913-916	775.712500	805.712500
	Data 150KHz	49-51	769.475000	799.475000
Fentress	Voice 25KHz	201-204	765.262500	795.262500
	Voice 25KHz	289-292	765.812500	795.812500
	Voice 25KHz	329-332	766.062500	796.062500
	Voice 25KHz	561-564	773.512500	803.512500
	Voice 25KHz	617-620	773.862500	803.862500
	Voice 25KHz	861-864	775.387500	805.387500
	Voice 25KHz	905-908	775.662500	805.662500
	Data 150KHz	43-45	769.175000	799.175000
Franklin	Voice 25KHz	241-244	765.512500	795.512500
	Voice 25KHz	333-336	766.087500	796.087500
	Voice 25KHz	401-404	766.512500	796.512500
	Voice 25KHz	449-452	766.812500	796.812500
	Voice 25KHz	505-508	773.162500	803.162500
	Voice 25KHz	625-628	773.912500	803.912500
	Voice 25KHz	677-680	774.237500	804.237500
	Voice 25KHz	749-752	774.687500	804.687500
	Data 150KHz	34-36	768.725000	798.725000
Gibson	Voice 25KHz	93-96	764.587500	794.587500
	Voice 25KHz	137-140	764.862500	794.862500
	Voice 25KHz	201-204	765.262500	795.262500
	Voice 25KHz	253-256	765.587500	795.587500
	Voice 25KHz	385-388	766.412500	796.412500
	Voice 25KHz	429-432	766.687500	796.687500
	Voice 25KHz	481-484	773.012500	803.012500

	Voice 25KHz	545-548	773.412500	803.412500
	Voice 25KHz	585-588	773.662500	803.662500
	Voice 25KHz	705-708	774.412500	804.412500
	Voice 25KHz	785-788	774.912500	804.912500
	Voice 25KHz	825-828	775.162500	805.162500
	Voice 25KHz	909-912	775.687500	805.687500
	Data 150KHz	55-57	769.775000	799.775000
Giles	Voice 25KHz	89-92	764.562500	794.562500
	Voice 25KHz	161-164	765.012500	795.012500
	Voice 25KHz	377-380	766.362500	796.362500
	Voice 25KHz	545-548	773.412500	803.412500
	Voice 25KHz	613-616	773.837500	803.837500
	Voice 25KHz	673-676	774.212500	804.212500
	Data 150KHz	55-57	769.775000	799.775000
Grainger	Voice 25KHz	89-92	764.562500	794.562500
	Voice 25KHz	417-420	766.612500	796.612500
	Voice 25KHz	529-532	773.312500	803.312500
	Voice 25KHz	629-632	773.937500	803.937500
	Voice 25KHz	745-748	774.662500	804.662500
	Data 150KHz	49-51	769.475000	799.475000
Greene	Voice 25KHz	57-60	764.362500	794.362500
	Voice 25KHz	241-244	765.512500	795.512500
	Voice 25KHz	297-300	765.862500	795.862500
	Voice 25KHz	365-368	766.287500	796.287500
	Voice 25KHz	457-460	766.862500	796.862500
	Voice 25KHz	573-576	773.587500	803.587500
	Voice 25KHz	585-588	773.662500	803.662500
	Voice 25KHz	637-640	773.987500	803.987500
	Voice 25KHz	705-708	774.412500	804.412500
	Data 150KHz	34-36	768.725000	798.725000
Grundy	Voice 25KHz	89-92	764.562500	794.562500
	Voice 25KHz	361-364	766.262500	796.262500
	Voice 25KHz	545-548	773.412500	803.412500
	Voice 25KHz	601-604	773.762500	803.762500
	Voice 25KHz	869-872	775.437500	805.437500
	Data 150KHz	49-51	769.475000	799.475000
Hamblen	Voice 25KHz	81-84	764.512500	794.512500
	Voice 25KHz	253-256	765.587500	795.587500
	Voice 25KHz	341-344	766.137500	796.137500
	Voice 25KHz	377-380	766.362500	796.362500
	Voice 25KHz	433-436	766.712500	796.712500
	Voice 25KHz	485-488	773.037500	803.037500
	Voice 25KHz	545-548	773.412500	803.412500
	Voice 25KHz	913-916	775.712500	805.712500
	Data 150KHz	43-45	769.175000	799.175000

Hamilton	Voice 25KHz	41-44	764.262500	794.262500
	Voice 25KHz	81-84	764.512500	794.512500
	Voice 25KHz	133-136	764.837500	794.837500
	Voice 25KHz	201-204	765.262500	795.262500
	Voice 25KHz	245-248	765.537500	795.537500
	Voice 25KHz	289-292	765.812500	795.812500
	Voice 25KHz	337-340	766.112500	796.112500
	Voice 25KHz	381-384	766.387500	796.387500
	Voice 25KHz	425-428	766.662500	796.662500
	Voice 25KHz	469-472	766.937500	796.937500
	Voice 25KHz	509-512	773.187500	803.187500
	Voice 25KHz	553-556	773.462500	803.462500
	Voice 25KHz	605-608	773.787500	803.787500
	Voice 25KHz	669-672	774.187500	804.187500
	Voice 25KHz	709-712	774.437500	804.437500
	Voice 25KHz	789-792	774.937500	804.937500
	Voice 25KHz	865-868	775.412500	805.412500
	Voice 25KHz	905-908	775.662500	805.662500
	Voice 25KHz	945-948	775.912500	805.912500
	Data 150KHz	31-33	768.575000	798.575000
	Data 150KHz	67-69	770.375000	800.375000
	Data 150KHz	88-90	771.425000	801.425000
Hancock	Voice 25KHz	369-372	766.312500	796.312500
	Voice 25KHz	497-500	773.112500	803.112500
	Voice 25KHz	581-584	773.637500	803.637500
	Voice 25KHz	701-704	774.387500	804.387500
	Voice 25KHz	905-908	775.662500	805.662500
	Data 150KHz	70-72	770.525000	800.525000
Hardeman	Voice 25KHz	85-88	764.537500	794.537500
	Voice 25KHz	341-344	766.137500	796.137500
	Voice 25KHz	405-408	766.537500	796.537500
	Voice 25KHz	521-524	773.262500	803.262500
	Voice 25KHz	577-580	773.612500	803.612500
	Voice 25KHz	629-632	773.937500	803.937500
	Voice 25KHz	669-672	774.187500	804.187500
	Voice 25KHz	709-712	774.437500	804.437500
	Voice 25KHz	873-876	775.462500	805.462500
	Data 150KHz	76-78	770.825000	800.825000
Hardin	Voice 25KHz	89-92	764.562500	794.562500
	Voice 25KHz	257-260	765.612500	795.612500
	Voice 25KHz	321-324	766.012500	796.012500
	Voice 25KHz	381-384	766.387500	796.387500
	Voice 25KHz	465-468	766.912500	796.912500
	Voice 25KHz	501-504	773.137500	803.137500
	Voice 25KHz	573-576	773.587500	803.587500
	Voice 25KHz	633-636	773.962500	803.962500
	Voice 25KHz	673-676	774.212500	804.212500
	Data 150KHz	40-42	769.025000	799.025000

Hawkins	Voice 25KHz	325-328	766.037500	796.037500
	Voice 25KHz	389-392	766.437500	796.437500
	Voice 25KHz	469-472	766.937500	796.937500
	Voice 25KHz	621-624	773.887500	803.887500
	Voice 25KHz	797-800	774.987500	804.987500
	Voice 25KHz	837-840	775.237500	805.237500
	Data 150KHz	55-57	769.775000	799.775000
Haywood	Voice 25KHz	381-384	766.387500	796.387500
	Voice 25KHz	425-428	766.662500	796.662500
	Voice 25KHz	465-468	766.912500	796.912500
	Voice 25KHz	537-540	773.362500	803.362500
	Voice 25KHz	589-592	773.687500	803.687500
	Voice 25KHz	789-792	774.937500	804.937500
	Data 150KHz	67-69	770.375000	800.375000
Henderson	Voice 25KHz	81-84	764.512500	794.512500
	Voice 25KHz	209-212	765.312500	795.312500
	Voice 25KHz	345-348	766.162500	796.162500
	Voice 25KHz	401-404	766.512500	796.512500
	Voice 25KHz	509-512	773.187500	803.187500
	Voice 25KHz	553-556	773.462500	803.462500
	Voice 25KHz	625-628	773.912500	803.912500
	Voice 25KHz	865-868	775.412500	805.412500
	Data 150KHz	61-63	770.075000	800.075000
Henry	Voice 25KHz	241-244	765.512500	795.512500
	Voice 25KHz	281-284	765.762500	795.762500
	Voice 25KHz	357-360	766.237500	796.237500
	Voice 25KHz	397-400	766.487500	796.487500
	Voice 25KHz	541-544	773.387500	803.387500
	Voice 25KHz	637-640	773.987500	803.987500
	Voice 25KHz	701-704	774.387500	804.387500
	Voice 25KHz	749-752	774.687500	804.687500
	Voice 25KHz	829-832	775.187500	805.187500
	Voice 25KHz	905-908	775.662500	805.662500
	Voice 25KHz	945-948	775.912500	805.912500
	Data 150KHz	49-51	769.475000	799.475000
Hickman	Voice 25KHz	369-372	766.312500	796.312500
	Voice 25KHz	421-424	766.637500	796.637500
	Voice 25KHz	473-476	766.962500	796.962500
	Voice 25KHz	485-488	773.037500	803.037500
	Voice 25KHz	677-680	774.237500	804.237500
	Voice 25KHz	793-796	774.962500	804.962500
	Voice 25KHz	873-876	775.462500	805.462500
	Voice 25KHz	941-944	775.887500	805.887500
	Data 150KHz	52-54	769.625000	799.625000
Houston	Voice 25KHz	161-164	765.012500	795.012500
	Voice 25KHz	373-376	766.337500	796.337500
	Voice 25KHz	465-468	766.912500	796.912500
	Voice 25KHz	585-588	773.662500	803.662500
	Voice 25KHz	797-800	774.987500	804.987500
	Data 150KHz	40-42	769.025000	799.025000
Humphreys	Voice 25KHz	389-392	766.437500	796.437500
	Voice 25KHz	433-436	766.712500	796.712500
	Voice 25KHz	521-524	773.262500	803.262500

	Voice 25KHz	609-612	773.812500	803.812500
	Voice 25KHz	669-672	774.187500	804.187500
	Voice 25KHz	909-912	775.687500	805.687500
	Data 150KHz	76-78	770.825000	800.825000
Jackson	Voice 25KHz	169-172	765.062500	795.062500
	Voice 25KHz	357-360	766.237500	796.237500
	Voice 25KHz	413-416	766.587500	796.587500
	Voice 25KHz	573-576	773.587500	803.587500
	Voice 25KHz	745-748	774.662500	804.662500
	Data 150KHz	79-81	770.975000	800.975000
Jefferson	Voice 25KHz	321-324	766.012500	796.012500
	Voice 25KHz	393-396	766.462500	796.462500
	Voice 25KHz	449-452	766.812500	796.812500
	Voice 25KHz	569-572	773.562500	803.562500
	Voice 25KHz	869-872	775.437500	805.437500
	Data 150KHz	85-87	771.275000	801.275000
Johnson	Voice 25KHz	81-84	764.512500	794.512500
	Voice 25KHz	213-216	765.337500	795.337500
	Voice 25KHz	417-420	766.612500	796.612500
	Voice 25KHz	533-536	773.337500	803.337500
	Voice 25KHz	745-748	774.662500	804.662500
	Data 150KHz	49-51	769.475000	799.475000
Knox	Voice 25KHz	45-48	764.287500	794.287500
	Voice 25KHz	97-100	764.612500	794.612500
	Voice 25KHz	161-164	765.012500	795.012500
	Voice 25KHz	201-204	765.262500	795.262500
	Voice 25KHz	245-248	765.537500	795.537500
	Voice 25KHz	285-288	765.787500	795.787500
	Voice 25KHz	349-352	766.187500	796.187500
	Voice 25KHz	405-408	766.537500	796.537500
	Voice 25KHz	425-428	766.662500	796.662500
	Voice 25KHz	461-464	766.887500	796.887500
	Voice 25KHz	493-496	773.087500	803.087500
	Voice 25KHz	553-556	773.462500	803.462500
	Voice 25KHz	597-600	773.737500	803.737500
	Voice 25KHz	665-668	774.162500	804.162500
	Voice 25KHz	717-720	774.487500	804.487500
	Voice 25KHz	757-760	774.737500	804.737500
	Voice 25KHz	829-832	775.187500	805.187500
	Voice 25KHz	901-904	775.637500	805.637500
	Voice 25KHz	945-948	775.912500	805.912500
	Data 150KHz	40-42	769.025000	799.025000
	Data 150KHz	55-57	769.775000	799.775000
	Data 150KHz	67-69	770.375000	800.375000
Lake	Voice 25KHz	97-100	764.612500	794.612500
	Voice 25KHz	293-296	765.837500	795.837500
	Voice 25KHz	337-340	766.112500	796.112500
	Voice 25KHz	401-404	766.512500	796.512500
	Voice 25KHz	457-460	766.862500	796.862500
	Voice 25KHz	517-520	773.237500	803.237500
	Voice 25KHz	557-560	773.487500	803.487500

	Data	150KHz	31-33	768.575000	798.575000
Lauderdale	Voice	25KHz	133-136	764.837500	794.837500
	Voice	25KHz	205-208	765.287500	795.287500
	Voice	25KHz	373-376	766.337500	796.337500
	Voice	25KHz	505-508	773.162500	803.162500
	Voice	25KHz	549-552	773.437500	803.437500
	Voice	25KHz	625-628	773.912500	803.912500
	Voice	25KHz	749-752	774.687500	804.687500
	Voice	25KHz	829-832	775.187500	805.187500
	Data	150KHz	52-54	769.625000	799.625000
Lawrence	Voice	25KHz	97-100	764.612500	794.612500
	Voice	25KHz	245-248	765.537500	795.537500
	Voice	25KHz	325-328	766.037500	796.037500
	Voice	25KHz	405-408	766.537500	796.537500
	Voice	25KHz	445-448	766.787500	796.787500
	Voice	25KHz	497-500	773.112500	803.112500
	Voice	25KHz	581-584	773.637500	803.637500
	Voice	25KHz	637-640	773.987500	803.987500
	Voice	25KHz	829-832	775.187500	805.187500
	Voice	25KHz	869-872	775.437500	805.437500
	Data	150KHz	34-36	768.725000	798.725000
	Data	150KHz	49-51	769.475000	799.475000
Lewis	Voice	25KHz	137-140	764.862500	794.862500
	Voice	25KHz	341-344	766.137500	796.137500
	Voice	25KHz	385-388	766.412500	796.412500
	Voice	25KHz	429-432	766.687500	796.687500
	Voice	25KHz	557-560	773.487500	803.487500
	Voice	25KHz	665-668	774.162500	804.162500
	Voice	25KHz	785-788	774.912500	804.912500
	Voice	25KHz	905-908	775.662500	805.662500
	Data	150KHz	43-45	769.175000	799.175000
Lincoln	Voice	25KHz	81-84	764.512500	794.512500
	Voice	25KHz	205-208	765.287500	795.287500
	Voice	25KHz	409-412	766.562500	796.562500
	Voice	25KHz	537-540	773.362500	803.362500
	Voice	25KHz	585-588	773.662500	803.662500
	Voice	25KHz	793-796	774.962500	804.962500
	Voice	25KHz	873-876	775.462500	805.462500
	Data	150KHz	76-78	770.825000	800.825000
Loudon	Voice	25KHz	217-220	765.362500	795.362500
	Voice	25KHz	325-328	766.037500	796.037500
	Voice	25KHz	365-368	766.287500	796.287500
	Voice	25KHz	433-436	766.712500	796.712500
	Voice	25KHz	545-548	773.412500	803.412500
	Voice	25KHz	673-676	774.212500	804.212500
	Voice	25KHz	837-840	775.237500	805.237500
	Data	150KHz	49-51	769.475000	799.475000

Macon	Voice 25KHz	205-208	765.287500	795.287500
	Voice 25KHz	429-432	766.687500	796.687500
	Voice 25KHz	473-476	766.962500	796.962500
	Voice 25KHz	509-512	773.187500	803.187500
	Voice 25KHz	609-612	773.812500	803.812500
	Voice 25KHz	665-668	774.162500	804.162500
	Voice 25KHz	941-944	775.887500	805.887500
	Data 150KHz	67-69	770.375000	800.375000
Madison	Voice 25KHz	13-16	764.087500	794.087500
	Voice 25KHz	57-60	764.362500	794.362500
	Voice 25KHz	121-124	764.762500	794.762500
	Voice 25KHz	165-168	765.037500	795.037500
	Voice 25KHz	245-248	765.537500	795.537500
	Voice 25KHz	285-288	765.787500	795.787500
	Voice 25KHz	325-328	766.037500	796.037500
	Voice 25KHz	361-364	766.262500	796.262500
	Voice 25KHz	393-396	766.462500	796.462500
	Voice 25KHz	445-448	766.787500	796.787500
	Voice 25KHz	489-492	773.062500	803.062500
	Voice 25KHz	529-532	773.312500	803.312500
	Voice 25KHz	613-616	773.837500	803.837500
	Voice 25KHz	677-680	774.237500	804.237500
	Voice 25KHz	717-720	774.487500	804.487500
	Voice 25KHz	757-760	774.737500	804.737500
	Voice 25KHz	797-800	774.987500	804.987500
	Voice 25KHz	837-840	775.237500	805.237500
	Voice 25KHz	901-904	775.637500	805.637500
	Voice 25KHz	941-944	775.887500	805.887500
	Data 150KHz	43-45	769.175000	799.175000
	Data 150KHz	85-87	771.275000	801.275000
Marion	Voice 25KHz	461-464	766.887500	796.887500
	Voice 25KHz	489-492	773.062500	803.062500
	Voice 25KHz	581-584	773.637500	803.637500
	Voice 25KHz	821-824	775.137500	805.137500
	Voice 25KHz	913-916	775.712500	805.712500
	Data 150KHz	43-45	769.175000	799.175000
Marshall	Voice 25KHz	357-360	766.237500	796.237500
	Voice 25KHz	441-444	766.762500	796.762500
	Voice 25KHz	521-524	773.262500	803.262500
	Voice 25KHz	561-564	773.512500	803.512500
	Voice 25KHz	909-912	775.687500	805.687500
	Data 150KHz	31-33	768.575000	798.575000
Maury	Voice 25KHz	53-56	764.337500	794.337500
	Voice 25KHz	217-220	765.362500	795.362500
	Voice 25KHz	285-288	765.787500	795.787500
	Voice 25KHz	349-352	766.187500	796.187500
	Voice 25KHz	413-416	766.587500	796.587500
	Voice 25KHz	461-464	766.887500	796.887500
	Voice 25KHz	509-512	773.187500	803.187500
	Voice 25KHz	589-592	773.687500	803.687500
	Voice 25KHz	629-632	773.937500	803.937500
	Voice 25KHz	701-704	774.387500	804.387500
	Voice 25KHz	821-824	775.137500	805.137500
	Data 150KHz	85-87	771.275000	801.275000
McMinn	Voice 25KHz	249-252	765.562500	795.562500

	Voice 25KHz	421-424	766.637500	796.637500
	Voice 25KHz	525-528	773.287500	803.287500
	Voice 25KHz	621-624	773.887500	803.887500
	Voice 25KHz	793-796	774.962500	804.962500
	Voice 25KHz	941-944	775.887500	805.887500
	Data 150KHz	58-60	769.925000	799.925000
McNairy	Voice 25KHz	97-100	764.612500	794.612500
	Voice 25KHz	161-164	765.012500	795.012500
	Voice 25KHz	433-436	766.712500	796.712500
	Voice 25KHz	477-480	766.987500	796.987500
	Voice 25KHz	485-488	773.037500	803.037500
	Voice 25KHz	541-544	773.387500	803.387500
	Voice 25KHz	753-756	774.712500	804.712500
	Voice 25KHz	833-836	775.212500	805.212500
	Data 150KHz	52-54	769.625000	799.625000
Meigs	Voice 25KHz	53-56	764.337500	794.337500
	Voice 25KHz	321-324	766.012500	796.012500
	Voice 25KHz	373-376	766.337500	796.337500
	Voice 25KHz	533-536	773.337500	803.337500
	Voice 25KHz	589-592	773.687500	803.687500
	Data 150KHz	64-66	770.225000	800.225000
Monroe	Voice 25KHz	165-168	765.037500	795.037500
	Voice 25KHz	329-332	766.062500	796.062500
	Voice 25KHz	489-492	773.062500	803.062500
	Voice 25KHz	581-584	773.637500	803.637500
	Voice 25KHz	701-704	774.387500	804.387500
	Voice 25KHz	861-864	775.387500	805.387500
	Data 150KHz	43-45	769.175000	799.175000
Montgomery	Voice 25KHz	45-48	764.287500	794.287500
	Voice 25KHz	89-92	764.562500	794.562500
	Voice 25KHz	137-140	764.862500	794.862500
	Voice 25KHz	173-176	765.087500	795.087500
	Voice 25KHz	205-208	765.287500	795.287500
	Voice 25KHz	245-248	765.537500	795.537500
	Voice 25KHz	329-332	766.062500	796.062500
	Voice 25KHz	393-396	766.462500	796.462500
	Voice 25KHz	457-460	766.862500	796.862500
	Voice 25KHz	497-500	773.112500	803.112500
	Voice 25KHz	517-520	773.237500	803.237500
	Voice 25KHz	557-560	773.487500	803.487500
	Voice 25KHz	601-604	773.762500	803.762500
	Voice 25KHz	665-668	774.162500	804.162500
	Voice 25KHz	705-708	774.412500	804.412500
	Voice 25KHz	745-748	774.662500	804.662500
	Voice 25KHz	785-788	774.912500	804.912500
	Voice 25KHz	825-828	775.162500	805.162500
	Voice 25KHz	865-868	775.412500	805.412500
	Voice 25KHz	917-920	775.737500	805.737500
	Data 150KHz	55-57	769.775000	799.775000
	Data 150KHz	85-87	771.275000	801.275000
Moore	Voice 25KHz	133-136	764.837500	794.837500
	Voice 25KHz	173-176	765.087500	795.087500
	Voice 25KHz	369-372	766.312500	796.312500

	Voice 25KHz	429-432	766.687500	796.687500
	Voice 25KHz	473-476	766.962500	796.962500
	Data 150KHz	52-54	769.625000	799.625000
Morgan	Voice 25KHz	297-300	765.862500	795.862500
	Voice 25KHz	429-432	766.687500	796.687500
	Voice 25KHz	585-588	773.662500	803.662500
	Voice 25KHz	713-716	774.462500	804.462500
	Voice 25KHz	797-800	774.987500	804.987500
	Data 150KHz	70-72	770.525000	800.525000
Obion	Voice 25KHz	17-20	764.112500	794.112500
	Voice 25KHz	161-164	765.012500	795.012500
	Voice 25KHz	369-372	766.312500	796.312500
	Voice 25KHz	417-420	766.612500	796.612500
	Voice 25KHz	477-480	766.987500	796.987500
	Voice 25KHz	565-568	773.537500	803.537500
	Voice 25KHz	609-612	773.812500	803.812500
	Voice 25KHz	669-672	774.187500	804.187500
	Voice 25KHz	745-748	774.662500	804.662500
	Voice 25KHz	833-836	775.212500	805.212500
	Data 150KHz	40-42	769.025000	799.025000
Overton	Voice 25KHz	213-216	765.337500	795.337500
	Voice 25KHz	257-260	765.612500	795.612500
	Voice 25KHz	321-324	766.012500	796.012500
	Voice 25KHz	365-368	766.287500	796.287500
	Voice 25KHz	533-536	773.337500	803.337500
	Voice 25KHz	593-596	773.712500	803.712500
	Voice 25KHz	669-672	774.187500	804.187500
	Voice 25KHz	757-760	774.737500	804.737500
	Voice 25KHz	917-920	775.737500	805.737500
	Data 150KHz	49-51	769.475000	799.475000
Perry	Voice 25KHz	17-20	764.112500	794.112500
	Voice 25KHz	289-292	765.812500	795.812500
	Voice 25KHz	449-452	766.812500	796.812500
	Voice 25KHz	513-516	773.212500	803.212500
	Voice 25KHz	597-600	773.737500	803.737500
	Data 150KHz	58-60	769.925000	799.925000
Pickett	Voice 25KHz	377-380	766.362500	796.362500
	Voice 25KHz	497-500	773.112500	803.112500
	Voice 25KHz	553-556	773.462500	803.462500
	Voice 25KHz	749-752	774.687500	804.687500
	Voice 25KHz	869-872	775.437500	805.437500
	Data 150KHz	64-66	770.225000	800.225000
Polk	Voice 25KHz	213-216	765.337500	795.337500
	Voice 25KHz	257-260	765.612500	795.612500
	Voice 25KHz	369-372	766.312500	796.312500
	Voice 25KHz	569-572	773.562500	803.562500
	Voice 25KHz	909-912	775.687500	805.687500
	Data 150KHz	34-36	768.725000	798.725000

Putnam	Voice 25KHz	45-48	764.287500	794.287500
	Voice 25KHz	129-132	764.812500	794.812500
	Voice 25KHz	177-180	765.112500	795.112500
	Voice 25KHz	281-284	765.762500	795.762500
	Voice 25KHz	337-340	766.112500	796.112500
	Voice 25KHz	401-404	766.512500	796.512500
	Voice 25KHz	477-480	766.987500	796.987500
	Voice 25KHz	493-496	773.087500	803.087500
	Voice 25KHz	541-544	773.387500	803.387500
	Voice 25KHz	581-584	773.637500	803.637500
	Voice 25KHz	661-664	774.137500	804.137500
	Voice 25KHz	709-712	774.437500	804.437500
	Voice 25KHz	741-744	774.637500	804.637500
	Voice 25KHz	873-876	775.462500	805.462500
	Voice 25KHz	945-948	775.912500	805.912500
	Data 150KHz	61-63	770.075000	800.075000
	Data 150KHz	88-90	771.425000	801.425000
Rhea	Voice 25KHz	209-212	765.312500	795.312500
	Voice 25KHz	345-348	766.162500	796.162500
	Voice 25KHz	409-412	766.562500	796.562500
	Voice 25KHz	449-452	766.812500	796.812500
	Voice 25KHz	485-488	773.037500	803.037500
	Data 150KHz	52-54	769.625000	799.625000
Roane	Voice 25KHz	85-88	764.537500	794.537500
	Voice 25KHz	205-208	765.287500	795.287500
	Voice 25KHz	281-284	765.762500	795.762500
	Voice 25KHz	441-444	766.762500	796.762500
	Voice 25KHz	501-504	773.137500	803.137500
	Voice 25KHz	565-568	773.537500	803.537500
	Voice 25KHz	613-616	773.837500	803.837500
	Voice 25KHz	749-752	774.687500	804.687500
	Data 150KHz	85-87	771.275000	801.275000
Robertson	Voice 25KHz	81-84	764.512500	794.512500
	Voice 25KHz	169-172	765.062500	795.062500
	Voice 25KHz	253-256	765.587500	795.587500
	Voice 25KHz	357-360	766.237500	796.237500
	Voice 25KHz	401-404	766.512500	796.512500
	Voice 25KHz	445-448	766.787500	796.787500
	Voice 25KHz	505-508	773.162500	803.162500
	Voice 25KHz	545-548	773.412500	803.412500
	Voice 25KHz	613-616	773.837500	803.837500
	Voice 25KHz	673-676	774.212500	804.212500
	Data 150KHz	34-36	768.725000	798.725000

Rutherford	Voice	25KHz	41-44	764.262500	794.262500
	Voice	25KHz	85-88	764.537500	794.537500
	Voice	25KHz	165-168	765.037500	795.037500
	Voice	25KHz	209-212	765.312500	795.312500
	Voice	25KHz	249-252	765.562500	795.562500
	Voice	25KHz	297-300	765.862500	795.862500
	Voice	25KHz	373-376	766.337500	796.337500
	Voice	25KHz	425-428	766.662500	796.662500
	Voice	25KHz	469-472	766.937500	796.937500
	Voice	25KHz	481-484	773.012500	803.012500
	Voice	25KHz	533-536	773.337500	803.337500
	Voice	25KHz	577-580	773.612500	803.612500
	Voice	25KHz	617-620	773.862500	803.862500
	Voice	25KHz	669-672	774.187500	804.187500
	Voice	25KHz	717-720	774.487500	804.487500
	Voice	25KHz	757-760	774.737500	804.737500
	Voice	25KHz	797-800	774.987500	804.987500
	Voice	25KHz	877-880	775.487500	805.487500
	Voice	25KHz	917-920	775.737500	805.737500
	Data	150KHz	40-42	769.025000	799.025000
	Data	150KHz	58-60	769.925000	799.925000
Scott	Voice	25KHz	93-96	764.587500	794.587500
	Voice	25KHz	341-344	766.137500	796.137500
	Voice	25KHz	457-460	766.862500	796.862500
	Voice	25KHz	577-580	773.612500	803.612500
	Voice	25KHz	913-916	775.712500	805.712500
	Data	150KHz	88-90	771.425000	801.425000
Sequatchie	Voice	25KHz	125-128	764.787500	794.787500
	Voice	25KHz	173-176	765.087500	795.087500
	Voice	25KHz	521-524	773.262500	803.262500
	Voice	25KHz	637-640	773.987500	803.987500
	Voice	25KHz	829-832	775.187500	805.187500
	Data	150KHz	61-63	770.075000	800.075000
Sevier	Voice	25KHz	93-96	764.587500	794.587500
	Voice	25KHz	129-132	764.812500	794.812500
	Voice	25KHz	173-176	765.087500	795.087500
	Voice	25KHz	213-216	765.337500	795.337500
	Voice	25KHz	333-336	766.087500	796.087500
	Voice	25KHz	385-388	766.412500	796.412500
	Voice	25KHz	477-480	766.987500	796.987500
	Voice	25KHz	617-620	773.862500	803.862500
	Voice	25KHz	789-792	774.937500	804.937500
	Voice	25KHz	917-920	775.737500	805.737500
	Data	150KHz	61-63	770.075000	800.075000

Shelby	Voice 25KHz	49-52	764.312500	794.312500
	Voice 25KHz	89-92	764.562500	794.562500
	Voice 25KHz	129-132	764.812500	794.812500
	Voice 25KHz	169-172	765.062500	795.062500
	Voice 25KHz	209-212	765.312500	795.312500
	Voice 25KHz	249-252	765.562500	795.562500
	Voice 25KHz	289-292	765.812500	795.812500
	Voice 25KHz	329-332	766.062500	796.062500
	Voice 25KHz	377-380	766.362500	796.362500
	Voice 25KHz	429-432	766.687500	796.687500
	Voice 25KHz	477-480	766.987500	796.987500
	Voice 25KHz	481-484	773.012500	803.012500
	Voice 25KHz	533-536	773.337500	803.337500
	Voice 25KHz	581-584	773.637500	803.637500
	Voice 25KHz	633-636	773.962500	803.962500
	Voice 25KHz	673-676	774.212500	804.212500
	Voice 25KHz	713-716	774.462500	804.462500
	Voice 25KHz	753-756	774.712500	804.712500
	Voice 25KHz	793-796	774.962500	804.962500
	Voice 25KHz	833-836	775.212500	805.212500
	Voice 25KHz	905-908	775.662500	805.662500
	Voice 25KHz	945-948	775.912500	805.912500
	Data 150KHz	40-42	769.025000	799.025000
	Data 150KHz	55-57	769.775000	799.775000
	Data 150KHz	64-66	770.225000	800.225000
Smith	Voice 25KHz	369-372	766.312500	796.312500
	Voice 25KHz	441-444	766.762500	796.762500
	Voice 25KHz	525-528	773.287500	803.287500
	Voice 25KHz	601-604	773.762500	803.762500
	Voice 25KHz	793-796	774.962500	804.962500
	Voice 25KHz	865-868	775.412500	805.412500
	Data 150KHz	31-33	768.575000	798.575000
Stewart	Voice 25KHz	345-348	766.162500	796.162500
	Voice 25KHz	425-428	766.662500	796.662500
	Voice 25KHz	509-512	773.187500	803.187500
	Voice 25KHz	565-568	773.537500	803.537500
	Voice 25KHz	625-628	773.912500	803.912500
	Data 150KHz	31-33	768.575000	798.575000
Sullivan	Voice 25KHz	17-20	764.112500	794.112500
	Voice 25KHz	169-172	765.062500	795.062500
	Voice 25KHz	281-284	765.762500	795.762500
	Voice 25KHz	381-384	766.387500	796.387500
	Voice 25KHz	425-428	766.662500	796.662500
	Voice 25KHz	481-484	773.012500	803.012500
	Voice 25KHz	549-552	773.437500	803.437500
	Voice 25KHz	613-616	773.837500	803.837500
	Voice 25KHz	673-676	774.212500	804.212500
	Voice 25KHz	713-716	774.462500	804.462500

	Voice 25KHz	753-756	774.712500	804.712500
	Voice 25KHz	821-824	775.137500	805.137500
	Data 150KHz	61-63	770.075000	800.075000
	Data 150KHz	79-81	770.975000	800.975000
	Data 150KHz	85-87	771.275000	801.275000
Sumner	Voice 25KHz	17-20	764.112500	794.112500
	Voice 25KHz	57-60	764.362500	794.362500
	Voice 25KHz	161-164	765.012500	795.012500
	Voice 25KHz	217-220	765.362500	795.362500
	Voice 25KHz	289-292	765.812500	795.812500
	Voice 25KHz	333-336	766.087500	796.087500
	Voice 25KHz	377-380	766.362500	796.362500
	Voice 25KHz	465-468	766.912500	796.912500
	Voice 25KHz	521-524	773.262500	803.262500
	Voice 25KHz	585-588	773.662500	803.662500
	Voice 25KHz	701-704	774.387500	804.387500
	Voice 25KHz	821-824	775.137500	805.137500
	Voice 25KHz	861-864	775.387500	805.387500
	Voice 25KHz	913-916	775.712500	805.712500
	Data 150KHz	43-45	769.175000	799.175000
Tipton	Voice 25KHz	17-20	764.112500	794.112500
	Voice 25KHz	97-100	764.612500	794.612500
	Voice 25KHz	337-340	766.112500	796.112500
	Voice 25KHz	389-392	766.437500	796.437500
	Voice 25KHz	453-456	766.837500	796.837500
	Voice 25KHz	497-500	773.112500	803.112500
	Voice 25KHz	569-572	773.562500	803.562500
	Voice 25KHz	617-620	773.862500	803.862500
	Voice 25KHz	821-824	775.137500	805.137500
	Voice 25KHz	861-864	775.387500	805.387500
	Data 150KHz	34-36	768.725000	798.725000
Trousdale	Voice 25KHz	89-92	764.562500	794.562500
	Voice 25KHz	361-364	766.262500	796.262500
	Voice 25KHz	409-412	766.562500	796.562500
	Voice 25KHz	549-552	773.437500	803.437500
	Voice 25KHz	633-636	773.962500	803.962500
	Data 150KHz	52-54	769.625000	799.625000
Unicoi	Voice 25KHz	85-88	764.537500	794.537500
	Voice 25KHz	329-332	766.062500	796.062500
	Voice 25KHz	509-512	773.187500	803.187500
	Voice 25KHz	577-580	773.612500	803.612500
	Voice 25KHz	793-796	774.962500	804.962500
	Data 150KHz	52-54	769.625000	799.625000
Union	Voice 25KHz	337-340	766.112500	796.112500
	Voice 25KHz	437-440	766.737500	796.737500
	Voice 25KHz	517-520	773.237500	803.237500
	Voice 25KHz	609-612	773.812500	803.812500
	Voice 25KHz	785-788	774.912500	804.912500
	Data 150KHz	64-66	770.225000	800.225000
Van Buren	Voice 25KHz	285-288	765.787500	795.787500
	Voice 25KHz	377-380	766.362500	796.362500

	Voice 25KHz	513-516	773.212500	803.212500
	Voice 25KHz	557-560	773.487500	803.487500
	Voice 25KHz	701-704	774.387500	804.387500
	Voice 25KHz	909-912	775.687500	805.687500
	Data 150KHz	70-72	770.525000	800.525000
Warren	Voice 25KHz	161-164	765.012500	795.012500
	Voice 25KHz	217-220	765.362500	795.362500
	Voice 25KHz	293-296	765.837500	795.837500
	Voice 25KHz	349-352	766.187500	796.187500
	Voice 25KHz	393-396	766.462500	796.462500
	Voice 25KHz	445-448	766.787500	796.787500
	Voice 25KHz	529-532	773.312500	803.312500
	Voice 25KHz	621-624	773.887500	803.887500
	Voice 25KHz	673-676	774.212500	804.212500
	Voice 25KHz	753-756	774.712500	804.712500
	Data 150KHz	85-87	771.275000	801.275000
Washington	Voice 25KHz	133-136	764.837500	794.837500
	Voice 25KHz	217-220	765.362500	795.362500
	Voice 25KHz	373-376	766.337500	796.337500
	Voice 25KHz	445-448	766.787500	796.787500
	Voice 25KHz	489-492	773.062500	803.062500
	Voice 25KHz	565-568	773.537500	803.537500
	Voice 25KHz	661-664	774.137500	804.137500
	Voice 25KHz	717-720	774.487500	804.487500
	Voice 25KHz	781-784	774.887500	804.887500
	Voice 25KHz	865-868	775.412500	805.412500
	Data 150KHz	40-42	769.025000	799.025000
	Data 150KHz	67-69	770.375000	800.375000
Wayne	Voice 25KHz	169-172	765.062500	795.062500
	Voice 25KHz	249-252	765.562500	795.562500
	Voice 25KHz	333-336	766.087500	796.087500
	Voice 25KHz	417-420	766.612500	796.612500
	Voice 25KHz	565-568	773.537500	803.537500
	Voice 25KHz	617-620	773.862500	803.862500
	Voice 25KHz	861-864	775.387500	805.387500
	Data 150KHz	79-81	770.975000	800.975000
Weakley	Voice 25KHz	85-88	764.537500	794.537500
	Voice 25KHz	129-132	764.812500	794.812500
	Voice 25KHz	173-176	765.087500	795.087500
	Voice 25KHz	213-216	765.337500	795.337500
	Voice 25KHz	333-336	766.087500	796.087500
	Voice 25KHz	405-408	766.537500	796.537500
	Voice 25KHz	461-464	766.887500	796.887500
	Voice 25KHz	497-500	773.112500	803.112500
	Voice 25KHz	593-596	773.712500	803.712500
	Voice 25KHz	661-664	774.137500	804.137500
	Voice 25KHz	861-864	775.387500	805.387500
	Data 150KHz	58-60	769.925000	799.925000
	Data 150KHz	70-72	770.525000	800.525000
White	Voice 25KHz	121-124	764.762500	794.762500
	Voice 25KHz	325-328	766.037500	796.037500
	Voice 25KHz	385-388	766.412500	796.412500

	Voice 25KHz	453-456	766.837500	796.837500
	Voice 25KHz	505-508	773.162500	803.162500
	Voice 25KHz	597-600	773.737500	803.737500
	Voice 25KHz	825-828	775.162500	805.162500
	Voice 25KHz	901-904	775.637500	805.637500
	Data 150KHz	34-36	768.725000	798.725000
Williamson	Voice 25KHz	13-16	764.087500	794.087500
	Voice 25KHz	121-124	764.762500	794.762500
	Voice 25KHz	177-180	765.112500	795.112500
	Voice 25KHz	257-260	765.612500	795.612500
	Voice 25KHz	337-340	766.112500	796.112500
	Voice 25KHz	397-400	766.487500	796.487500
	Voice 25KHz	453-456	766.837500	796.837500
	Voice 25KHz	501-504	773.137500	803.137500
	Voice 25KHz	541-544	773.387500	803.387500
	Voice 25KHz	573-576	773.587500	803.587500
	Voice 25KHz	605-608	773.787500	803.787500
	Voice 25KHz	661-664	774.137500	804.137500
	Voice 25KHz	741-744	774.637500	804.637500
	Voice 25KHz	781-784	774.887500	804.887500
	Voice 25KHz	901-904	775.637500	805.637500
	Data 150KHz	61-63	770.075000	800.075000
Wilson	Voice 25KHz	125-128	764.787500	794.787500
	Voice 25KHz	173-176	765.087500	795.087500
	Voice 25KHz	345-348	766.162500	796.162500
	Voice 25KHz	389-392	766.437500	796.437500
	Voice 25KHz	449-452	766.812500	796.812500
	Voice 25KHz	497-500	773.112500	803.112500
	Voice 25KHz	565-568	773.537500	803.537500
	Voice 25KHz	625-628	773.912500	803.912500
	Voice 25KHz	677-680	774.237500	804.237500
	Voice 25KHz	837-840	775.237500	805.237500
	Voice 25KHz	905-908	775.662500	805.662500
	Data 150KHz	76-78	770.825000	800.825000

CONCLUSION

This Region 39 700 MHz Regional Planning Committee report is documentation of the Region 39 700 MHz process. Over the last four years, committee participation consisted of twenty-six (26) of the ninety-five (95) counties in Tennessee, twenty-four (24) cities and city agencies, two (2) state universities, five (5) federal agencies, one (1) municipal utility and fourteen (14) State agencies as well as two state associations, not counting the associations represented by individuals, and twelve (12) commercial vendors.

Every item in this document has been reviewed and is pertinent to public safety 700 MHz implementation in Tennessee and in accordance with plans for allowing 700 MHz channels to be used in Tennessee's adjacent states of Alabama, Arkansas, Georgia, Kentucky, Mississippi, Missouri, North Carolina, Virginia, and non border states of Illinois, South Carolina and West Virginia. We look forward to working with the Regional planning committees in these states to better the potential for public safety to have the tools available to complete their mission of protecting life and property in their respective states.

Respectfully,

John W. Johnson
Chairperson, Region 39 Regional Planning Committee
Tennessee Emergency Management Agency

December 13, 2005

ATTACHMENTS

SIGNED LETTERS OF CONCURRENCE FROM ADJACENT REGIONS
FOLLOWED BY SIGNED DISPUTE RESOLUTIONS FROM THE ADJACENT REGIONS.

ONLY THE SIGNATURE PAGE IS INCLUDED IN THE DISPUTE RESOLUTION SINCE APPENDIX "H" CONTAINS THE DISPUTE RESOLUTION.